THE REPORT

OF THE

PRESIDENT

OF

QUEEN'S COLLEGE, BELFAST,

FOR

THE YEAR ENDING 1ST MARCH, 1863,

WITH APPENDICES.

Presented to both Houses of Parliament by Command of Her Majesty.

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FOR HER MAJESTY'S STATIONERY OFFICE.
1863.

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THE REPORT

OF THE

PRESIDENT OF QUEEN'S COLLEGE, BELFAST,

FOR

THE YEAR ENDING MARCH 1, 1863.

TO THE QUEEN'S MOST EXCELLENT MAJESTY.

MAY IT PLEASE YOUR MAJESTY,

The Report which I have now the honour of presenting to your Majesty affords satisfactory proof of the continued steady progress and success of this College. So far back as the Session 1852–53, the Queen's Colleges in Ireland laboured under the great disadvantages resulting from the previous years of famine. Since that period, the annual increase of the Students in attendance shows the advancement of these Colleges in public estimation, notwithstanding all the difficulties they have had to encounter. Regarding this College, the following table affords abundant proof that the education it furnishes is adapted to the circumstances of the age in which we live.

RETURN of the Total Number of Students attending Queen's College, Belfast, since the year 1852.

Session.	Matriculated.	Non-Matriculated.	Total.	Session.	Matriculated.	Non-Matriculated.	Total.
1852–53,	101	53	154	1858–59,	160	63	223
1853–54,	114	54	168	1859–60,	199	58	257
1854–55,	118	65	183	1860–61,	239	73	312
1855–56,	119	74	193	1861–62,	299	77	376
1856–57,	136	58	194	1862–63,	335	53	388
1857–58,	153	54	207				

NUMBER of new Students, or Freshmen, Matriculated and Non-Matriculated, attending Queen's College, Belfast, for the first time, in the Session 1862–63.

Matriculated, . . .	115
Non-Matriculated, . .	22
Total, . . .	137

The total number of Students at Belfast College in 1852–53 was 154; now, there are in attendance 388. Of these, 335 are Matriculated; and it will also be seen from the return in the table that, during this Session, 137 young men entered the College for the first time, of whom 115 are Matriculated. Since the Session 1857–58, there has been an increase in the whole numbers in attendance of 181. Besides the 137 Freshmen, four other Students entered the College; but, having ceased to attend, their names have been erased from the rolls.

I have much satisfaction in stating that the new Anatomical

Rooms were given over to me by the Board of Works at the beginning of this year, and that they have been occupied since that time with great benefit and comfort to the Students. I have no doubt that, under the able management and instruction of the Professor of Anatomy and Physiology, they will continue, from year to year, to be highly advantageous to the Medical School of this College.

By the erection of part of the Anatomical Buildings in the College grounds the Students have been relieved from the inconvenience of walking to and fro, for the distance of a mile, between the Practical Rooms and the College, as formerly.

It is earnestly to be hoped that the remaining part of these buildings will soon be undertaken, so that the Anatomical and Physiological collection in the College Museum may be made available for teaching in the new buildings, and that the injury resulting from carrying preparations for lecture from place to place may be obviated.

RETURN of the Number of Medical Students in attendance in each Session.

Session.	Matriculated.	Non-Matriculated.	Total.	Session.	Matriculated.	Non-Matriculated.	Total.
1849–50,	28	27	55	1856–57,	36	25	61
1850–51,	20	35	55	1857–58,	35	32	67
1851–52,	25	39	64	1858–59,	45	34	79
1852–53,	29	33	62	1859–60,	56	39	95
1853–54,	29	37	66	1860–61,	70	46	116
1854–55,	39	36	75	1861–62,	81	48	129
1855–56,	33	48	81	1862–63,	89	33	122

The subjoined denominational table presents nearly the same features of religious diversity as have annually existed, in proportion to the numbers in attendance, at Belfast College.

DENOMINATIONAL RETURN.

	SESSIONS.			
	1859–60.	1860–61.	1861–62.	1862–63.
Established Church,	43	57	59	61
General Assembly,	160	189	221	237
Non-Subscribing Presbyterians,	15	14	29	13
Roman Catholics,	16	22	17	24
Wesleyan Methodists,	8	7	13	11
Covenanters,	8	9	12	22
Seceders,	1	4	4	3
Independents,	2	–	4	3
Baptists,	–	–	1	1
Various,	4	9	14	10
Religious Denomination withheld,	–	1	1	3
Total,	257	312	375	388

The following return gives the number of Scholarships awarded in the present Session; and in making it, I cannot help remarking once again on the particular organization that exists in the Queen's Colleges regarding this class of exhibitions. In the Queen's Colleges, these honors have hitherto been competed for anew, every year, by those Students qualified to become candidates. It is very different with the greater number of other universities, where the Scholarships are held for three, four, and in some of them for five years. The misapprehension which has existed respecting the number of Scholarships attached to the Queen's Colleges ought at once to be removed by a candid consideration of this fact. Forgetfulness of this arrangement has led many to regard the Scholarships as nearly treble what they really are, and thus by so much to exaggerate the real number of those placed at the disposal of the College.

SCHOLARSHIPS awarded in the several Faculties, 1862–63.

7 Senior Scholarships in Arts.
2 Do. Medicine.
29 Junior Scholarships in Arts.
2 Engineering Scholarships.
2 Agricultural Scholarships.
6 Medical.
4 Law.

LAPSED.

1 Scholarship in Arts.
2 Scholarships, 2nd year, Agriculture.

In referring to Scholarships, I must, on my own part and on that of the authorities of this College, express the deep sense of gratitude felt by us, and all the friends of enlightened education in Ireland, to Sir Robert Peel, for his noble and successful appeal to the country, which has placed at his disposal funds fully equal to £10,000 for supplementing the exhibitions founded by the sum already placed on the Consolidated Fund, for the purpose of endowing them. With a resolute determination to accomplish this great object, he encountered formidable difficulties; but his appeal to many of the leading statesmen of the country, as well as to others, was followed by a most encouraging response. It will be remembered that, at the conferring of the University Degrees in St. Patrick's Hall, in October, 1861, Sir Robert Peel, in order to evince his conviction of the immense advantage which would accrue to the youth of this country by affording exhibitions for competition, established, from his own resources, three Scholarships of £40 a-year each—one for each of the Colleges—for the space of ten years, being equivalent to a sum of £1,200. Mr. Alexander Thom, of Dublin, added to this munificent grant the generous contribution of £600. The funds accruing from these sums were in the first year competed for by the Students of the three Colleges. And of £180 thus competed for, prizes of the value of £140 were carried by Students of this College. A result still more gratifying for this College took place in the competition for the Peel Scholarships, in October, 1862. The successful candidates were—

		£
In Medicine,	Alex. Porter, . .	40
In Arts,	William Park, . .	60
,,	James Brown Armour, .	45
,,	Matthew Leitch,	one of 45 and one of £30.
,,	James Shaw, . . .	45
,,	William M'Laren Smith,	30

In all £295 awarded to Students of this College from this fund.

Sir Robert Peel, at the meeting for conferring Degrees in 1862, gave the following detailed statement of his plan:—

> "Having partly told you the names of those gentlemen who supported the plan, I will now tell you how the fund will be applied.
>
> "The sum subscribed is £8,749. When I started the subscription I was determined to get £10,000. I commenced with a paltry £40; but, in three months, that paltry £40 grew to the prodigious dimensions of £10,000. The subscription was £8,749. In addition there was £125 a-year; and, besides, there is also a most magnificent donation from another person, which I understand, is likely to be given to one of the colleges. The name of the person I am not at liberty to announce on this occasion. Out of that sum, which is more than £10,000, if you add what is anticipated to come, we propose to give £575 a year for ten years to the students of the University; there will be a balance left of £3,000, which, with the accumulated interest of capital, will be left as a reserve fund, to be applied as may be hereafter determined. I limit the subscription to ten years, because I hope at the end of that period there may be other means of promoting the interest of the University. We propose to establish with the money three exhibitions of £60 each in the Faculty of Arts; three exhibitions of £45 each for the best answerers; two exhibitions of £40 and £30 in the Faculty of Medicine; two exhibitions of £40 and £30 in Engineering; all these are to be held with scholarships, to which the students become entitled in each college. In addition, we propose to give £60 a year to the young men entering college for the first time, who may have passed the best preliminary examination. This is how we propose to distribute the magnificent fund which Irishmen alone, thus interested particularly to establish it, have so generously contributed."

At the end of last Session the President and Council disposed of the Sullivan Scholarships for that year, amounting, as they do, to £60 annually. We kept steadily in view the enlightened desires of this generous benefactor; he having, through the Peel Fund, assigned that amount yearly for the period of his life to this College for the encouragement of science and literature. The allocation of £60 for the present Session shall soon be made by the Council.

The Queen's University in Ireland continues to hold its distinguished place amongst the educational institutions of the country. This is made apparent by the returns of the number of Students who annually graduate in the Departments of Arts, Law, and Medicine. In October, 1860, 87 degrees and certificates were conferred in St. Patrick's Hall, by the Vice-Chancellor; in October, 1861, 128 degrees were conferred, exclusive of 23 middle-class certificates given, on examination, to candidates who had not attended the Colleges. In last October, 168 of the higher degrees were conferred, together with 15 senior and junior certificates in arts, for candidates who are not members of the University;—in all 183.

Since the introduction of competitive examinations for offices in the Civil Service, the reports of this College have furnished a very distinguished array of successful Students. They have had to contend with numerous competitors from the oldest and most renowned universities in the empire. The remarkable success of a large number of our Alumni proves the admirable nature of the education imparted here, its adaptation to the wants of the community, the unflagging zeal and great ability of the Professors, and the energy and industry of the Students. Since the year 1857 sixteen Students of Queen's College, Belfast, have obtained appointments to the Civil Service of India. Of these Students, one stood first of all competitors; one, the second; two, fourth; one, sixth; one, tenth; one, seventeenth, &c.;—as will appear from the following list:—

> "In the year 1857, Beveridge, Henry, stood 1st on the entire list; Barkley, D. G., 4th; Smyth, John Watt, 10th. In the year 1859, Mulligan, John Watson, stood 2nd on the entire list; Wilson, John, 17th. In the year 1860, M'Minn, Charles Wm., stood 4th on the entire list; Porter, John Sinclair, 15th; Smyth, Thos. Watt, 35th; Spedding, Robert Deey, 40th; Parko, David Rowan, 72nd. In 1861, Patterson, Alexander B., stood 38th on the entire list; M'Watters, George, 52nd. In 1862, Barbour, D. M., besides three other gentlemen who gained high places, was placed 6th, being declared by the Examiners, the first of all the candidates in the great department of Mathematics, the first also in the Natural Sciences, and the third in Mental Science; Birkmyre, James, 34th place; Crawford, J. T., 40th place; and Hanson, T. G., 45th place."

During the past year Mr. Andrew M. Porter, a Law Student of this College, has had the high distinction conferred upon him of being appointed Barrington Lecturer, an honour which so young a barrister has rarely attained, owing to the extensive and trying competition which that appointment involves. I can only class with this the success of Mr. James Wilson, in carrying, at the Inns-of-Court, London, against all competitors, the great law prize of first Studentship, to be held for three years. It has been obtained twice by Students of this College.

The annual competition for the special prizes in March, 1863, was well sustained and highly satisfactory. The successful men were—

William George Aston, B.A.,	£30
David Buick, B.A.,	20
Hamilton Lowry Allen, B.A.,	15

Having been requested by the Civil Service Commissioners to state the facilities offered to persons studying in this College for the examination for the Civil Service of India, I requested the Registrar to send the following statement:—

> "I am directed to inform you, in reply to your letter to Mr. Stoney of the 13th ult., that the President and Council of this College sanctioned, some years back, the establishment of Special Courses for Students intending to become candidates for appointments in the Civil Service of India, the Public Service at home, and for commissions in the Royal Artillery and Engineers.
>
> "Of these proposed courses a detailed account will be found in the accompanying paper, No. 1, pp. 1 to 4.
>
> "Shortly after these courses were sanctioned, the Queen's University in Ireland, where the Students of this College proceed to graduate, recommended the delivery of honor or higher courses of lectures by the Professors in the several subjects which are taught in the undergraduate course; and these honor courses, in conjunction with the ordinary lectures and practical courses of instruction in the College, have been found to embrace all that is required by candidates for the Civil Engineering and Military Services. A summary of the subjects taught in the College, accompanied by other details, will be found in the pamphlet marked No. 2, pp. 52 to 59.
>
> "Of these courses only two can be said to have been specially founded with a view to the competitive examinations, namely, Sanskrit and Hindustani, lectures in which have been regularly delivered for the last four years. See p. 52 of pamphlet marked No. 2.
>
> "The Commissioners will find that, with this addition, our curriculum is so complete in its character, and comprehensive in its details, as to embrace fully all the requirements of the public examinations.

"The success of the candidates from this College has been a source of great gratification to the President and Professors, the more especially as it has been attained as the result of a system of general education, without the least attempt, in any single case, to cram the candidates before going up for examination.

"All the details of these special and honor courses are published annually in the College Calendar."

I cannot overlook the case of Mr. Watters, of this College, now on his way to China as an interpreter. Earl Russell placed a nomination from the three Colleges for six vacancies then existing in the hands of Lord Clarendon, the Chancellor of the Queen's University, who was pleased to ask the Presidents to return the name of one Student from each College. I selected Mr. Watters, who entered the lists with numerous candidates from the various universities, and he nobly won from all the first place. His destination will throw him into the society of Mr. Hart, a former Student of this College, whose wonderful success in the diplomatic service affords strong testimony to the discrimination of Lord Clarendon, who appointed him.

I may state generally that hundreds of Students of this College, having passed into their respective professions at home and abroad, are now enjoying an independence, and conferring, by their zeal and ability, manifold advantages on the communities amidst which their lot has been cast.

In reference to the existence of the Deans of Residences, I have only to regret that the law defining the powers and duties of those functionaries remains still in an unsatisfactory condition, and to express a hope that your Majesty's Government will speedily take the whole question into serious consideration.

From my educational opportunities I have almost arrived at the conclusion that, owing to a variety of difficulties, the Executive will not be able for some time to carry out any large or general scheme of intermediate education. Our Governors still admit the necessity for the establishment of preparatory academies, linking together the primary schools and the universities. It is, however, to be hoped that the recommendations contained in the Report of the Endowed Schools Commission may not be abandoned, notwithstanding the countervailing circumstances which have hitherto prevented them from being carried into effect. Granting the existence of difficulties standing in the way of legislation, I am reluctant to relinquish the strong hope I once entertained, that an experimental grant might be made by Parliament to supplement the voluntary efforts of benevolent individuals for the establishment of schools and academies in populous districts, now destitute of such institutions. Such a step would be regarded by the whole community with the utmost satisfaction and gratitude. A grant in aid is all that is required.

After repeated applications on the subject, the Lords of Her Majesty's Treasury have lately been pleased to augment the salaries of most of the Professors, in order to afford them some adequate remuneration for their valuable services. The Presidents of the three Colleges have long been anxious for the accomplishment of this measure of justice and expediency.

Great diversity of opinion exists regarding the sources whence the funds for this augmentation might have been advantageously drawn. When £600 per annum is deducted for this purpose from the £1,600 a-year for some years past granted by Parliament for the support of the Libraries, Museums, and general maintenance of the College, together with about £500 required for that maintenance, there will remain only a sum of about £500 a-year for the supply of books, objects, and apparatus, for the various departments. As the arrangements now entered into for increasing the professorial salaries must remain undisturbed, it is evident that the Presidents will feel called upon not to allow much time to elapse without drawing the attention of Government to the inadequacy of £500 a-year for these most important purposes.

In the year 1857, when returning thanks to the Government for extending to the College this grant of £1,600 a-year, in order to meet the above-named requirements, and to abolish an oppressive fee charged yearly on Matriculated Students, I used the following language :—" On my own behalf, and on that of the College, I have to offer cordial thanks to the Government of the country for extending to us the means of supporting and maintaining the Libraries, Museums, the Philosophical and Medical Laboratories of this College. Without this, we should have been left destitute of every requisite instrumentality to cope with other universities, or to meet the public demand on us to make proof of our efficiency. With this, the Professors have their supplies, the Students their means of improvement, and the public its great reward, whilst, for generations to come, the collections of special books and objects now judiciously selected will exist in the heart of this great province as permanent and valuable repositories of art, science, and literature."

At the period when this grant was made, this Report shows the number of Students to have been 193, whilst now they amount to 388. It must, therefore, be apparent, if this College is to keep pace with the advancement of science, and the progressive yearly increase of its Students, that a much larger sum than is now left at our disposal must at no distant day be granted, in order to meet the rapidly increasing demand for an adequate supply to the Libraries and Museums, and to carry out efficiently, for the benefit of the country at large and the public service, the paramount objects for which the Queen's Colleges were founded.

All of which is testified on behalf of this College by your Majesty's most dutiful servant,

P. SHULDHAM HENRY, D.D.,

President.

QUEEN'S COLLEGE, BELFAST,
30th April, 1863.

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APPENDIX.

APPENDIX, No. 1.

Appendix, No. 1.

Queen's College, Belfast, and Queen's University.

Queen's College, Belfast, and Queen's University.

The Queen's College, Belfast, is a Corporation under the name and style of "The President, Vice-President, and Professors of Queen's College, Belfast." It was founded under the provisions of the Act 8 & 9 Victoria, cap. 66, intituled "An Act to enable Her Majesty to endow new Colleges for the Advancement of Learning in Ireland." Under the powers given by this Act, it was determined to found three Colleges. Belfast, Cork, and Galway, were selected as the sites of these Colleges, and on the 30th day of December, 1845, letters patent were issued, incorporating them. The Presidents and Vice-Presidents of the three Colleges were formed into a Board, called "The Board of Queen's Colleges," for the purpose of drawing up the Statutes and arranging the system of education to be pursued in them.

On the 4th of August, 1849, the Professors were appointed, and the Colleges opened for the reception of students on the 30th October, in the same year.

Letters Patent, constituting the Statutes, were issued on the 11th of December, 1849.

The Council of the College.

The President.
The Vice-President.
The Dean of the Literary Division of the Faculty of Arts.
The Dean of the Science Division of the Faculty of Arts.
The Dean of the Faculty of Medicine.
The Dean of the Faculty of Law.

Professors.

Literary Division of the Faculty of Arts.

The Greek Language, . .	Charles MacDouall, LL.D., M.R.A.S.
The Latin Language, . .	Rev. Charles Parsons Reichel, n.d.
History and English Literature,	George Lillie Craik, LL.D.
Modern Languages, . .	Mathias Joseph Frings, Ph.D.
The Celtic Languages, . .	[Vacant.]

Science Division of the Faculty of Arts.

Mathematics, . . .	[Vacant]*ad interim*, occupied by H. J. Sharpe, Esq.
Natural Philosophy, . .	John Stevelly, LL.D.
Chemistry, ...	Thomas Andrews, M.D., F.R.S., M.R.I.A.
Natural History, . . Mineralogy and Geology,	Wyville Thomson, LL.D., F.R.S.E., F.G.S., M.R.I.A.
Logic and Metaphysics, .	Rev. James M'Cosh, LL.D.
Civil Engineering, . .	James Thomson, C.E., A.M.
Agriculture, ...	John F. Hodges, M.D., F.C.S.

Faculty of Medicine.

Anatomy and Physiology, .	Peter Redfern, M.D. Lond. F.R.C.S.
Practice of Medicine, . .	John Creery Ferguson, A.M., M.B.
Practice of Surgery, . .	Alexander Gordon, M.D.
Materia Medica, . . .	James Seaton Reid, M.D.
Midwifery, ...	William Burden, M.D.

Faculty of Law.

English Law, . . .	Echlin Molyneux, A.M.
Jurisprudence and Political Economy, . . .	T. E. Cliffe Leslie, LL.B.

Office Bearers.

Curator of Museum, . .	The Professor of Mineralogy and Geology.
Registrar, ...	Rev. Richard Oulton, A.B.
Librarian, ...	Rev. George Hill.
Bursar, ...	Alexander Dickey, Esq.

Appendix,
No. 1.

Queen's College, Belfast, and Queen's University.

DEANS OF RESIDENCES.

United Church of England and Ireland, . . .	Rev. Henry Murphy, A.M.
General Assembly of the Presbyterian Church in Ireland,	Rev. Henry Cooke, D.D., LL.D.
Irish Association of Non-Subscribing Presbyterians, .	Rev. John Porter.
Wesleyan Methodists, . .	Rev. Daniel Macafee.

The students of the College are either Matriculated or Non-matriculated. All the courses for Matriculated students in Arts, including the Departments of Civil Engineering and Agriculture, and also in the Faculties of Medicine and of Law, will be found in the Calendar, which is published annually.

Non-matriculated students, on paying the regulated class fees, and signing an engagement to observe order and discipline in the College, are permitted, without undergoing a preliminary examination, to attend any separate course or courses of lectures; but are not permitted to become candidates for Scholarships or Prizes, or to enjoy other privileges of the Matriculated students.

Students in any of the Faculties can be admitted *ad eundem* from the other Queen's Colleges, or from any University capable of granting degrees.

COLLEGIATE SCHOLARSHIPS.

In the FACULTY OF ARTS—30 Junior Scholarships, of £24 each, are awarded to Undergraduates—15 for Proficiency in Literature, and 15 for Proficiency in Science; also, 7 Senior Scholarships, of £40 each, to Graduates; also, 2 Scholarships, of £20 each, to Engineering, and 4 of £15 each, to Agricultural Students.

In the FACULTY OF MEDICINE—6 Junior Scholarships, of £20 each, and 2 Senior Scholarships, of £40 each, are awarded.

In the FACULTY OF LAW—3 Junior Scholarships, of £20 each, and 1 Senior Scholarship, of £40, are awarded.

SCHOLARSHIPS AWARDED IN THE SEVERAL FACULTIES, 1861–62.

7 Senior Scholarships awarded.
30 Junior Scholarships in Arts awarded.
2 Engineering Scholarships.
2 Agricultural Scholarships.
5 Medical Scholarships.
4 Law Scholarships.

Lapsed—2 Senior Scholarships in Arts.
,, 2 Agricultural Scholarships of Second Year.
,, 1 Medical Scholarship of Third Year.

1862–63.

9 Senior Scholarships awarded.
29 Junior Scholarships in Arts awarded.
2 Engineering Scholarships.
2 Agricultural Scholarships.
6 Medical Scholarships.
3 Law Scholarships.

Lapsed—1 Scholarship in Arts.
,, 2 Agricultural Scholarships of Second Year.

By an order of Her Majesty in Council, of 21st May, 1855, applying to the Civil Service, it is ordained that "every person nominated to a junior situation should obtain a certificate of qualification before entering on his duties." The ordinary classes in Queen's College embrace the branches required in this Examination for the Civil Service.

Appendix, No 1.

Queen's College, Belfast, and Queen's University.

Special Courses have been arranged for students intending to become candidates for commissions in the Royal Artillery and Engineers, and for appointments to the Civil Service of India, both of which are now thrown open to public competition.

Queen's University in Ireland.

The charter founding the Queen's University in Ireland received the Royal sanction in the year 1850, and it provides that its Senate should have the power of conferring upon the students of the Queen's Colleges of Belfast, Cork, and Galway, such degrees and distinctions, in the Faculties of Arts, Law, and Physic, as are granted and conferred in other Colleges and Universities of Great Britain and Ireland. It further ordains that any of the students of the three Queen's Colleges, who shall have obtained such degrees in any of the several Faculties of Arts, Medicine, and Law, as shall be conferred by the Chancellor and Senate of the Queen's University, shall he fully possessed of all such rights, privileges, and immunities, as belong to similar degrees granted by other Universities or Colleges, and shall be entitled to whatever rank and precedence is derived from similar degrees granted by other Universities.

By the charter of the Queen's University, candidates for Degrees in Medicine are required to have attended *at least one-third of the Courses of Medical Lectures* in some one of the Queen's Colleges. For the remainder of the Courses of Medical Lectures, authenticated certificates will be received from the Professors or Lecturers in Universities, Colleges, or Schools, recognised by the Senate of the Queen's University in Ireland.

The Chancellor and Senate also have the power of admitting, by special grace, Graduates of other Universities to similar and equal degrees.

In order to obtain a degree or diploma in the Queen's University it is necessary to enter the College as a Matriculated Student, to pass the entrance or Matriculation Examination, and to pursue a fixed course of study.

The Matriculated Students may be classified as follow:—

I. Those intending to proceed to the Degrees of A.B. and A.M.
II. ,, ,, Degree of M.D.
III. ,, ,, Diploma of Elementary Law.
IV. ,, ,, Degrees of LL.B. and LL.D.
V. ,, ,, Diploma of Civil Engineering.
VI. ,, ,, Diploma of Agriculture.

The Senate.

Chancellor.—The Right Honorable George William Frederick, Earl of Clarendon, K.G., G.C.B., &c.
Vice-Chancellor.—The Right Hon. Maziere Brady, Lord Chancellor of Ireland, M.R.I.A., &c.
His Grace Richard, Archbishop of Dublin, D.D., M.R.I.A., &c.
The Right Honorable William, Earl of Rosse, K.ST.P., M.R.I.A., &c.
The Right Honorable Thomas Spring, Baron Monteagle of Brandon, M.A., F.R.S., Member of Senate of University of London, Comptroller of the Exchequer.
The Right Honorable Francis Blackburne, Lord Justice in Appeal, LL.D., V.C.T.C.D., M.R.I.A.
The Right Honorable David R. Pigot, Lord Chief Baron of the Exchequer, M.R.I.A., &c.
The Rev. P. Shuldham Henry, D.D., President Queen's Collegs, Belfast.
Sir Robert Kane, F.R.S., M.R.I.A., &c., President Queen's College, Cork.
Edward Berwick, Esq., President Queen's College, Galway.
Sir Richard Griffith, Bart., LL.D., M.R.I.A., Commissioner of Public Works.
Dominic J. Corrigan, M.D., M.R.I.A., Physician in Ordinary to the Queen in Ireland.
Major-General Sir Thomas Askew Larcom, R.E., K.C.B., LL.D., F.R.S., M.R.I.A., &c.
James Gibson, A.M., M.R.I.A., Barrister-at-Law.
Robert Andrews, Q.C., LL.D.
The Right Honorable James Henry Monahan, Lord Chief Justice of the Common Pleas.
Robert Adams, A.M., M.D.
The Right Honorable Sir Robert Peel, Bart., M.P.

Secretary.—G. Johnstone Stoney, M.A.—Office, Dublin Castle.

The Senate holds its sitting in Dublin Castle, where the examinations of the students of the three Colleges, for Graduation and University Exhibitions, are annually conducted by Examiners appointed by the Senate from year to year.

B 2

Appendix, No. 2.

APPENDIX, No. 2.

Return of Students attending each Class.

RETURN of the NUMBER of STUDENTS attending each CLASS in the Queen's College, Belfast, in each Year.

CLASS.	SESSION.						
	1849-50	'50-51.	'51-52.	'52-53.	'53-54.	'54-55.	'55-56.
Greek—1st year,	71	47	28	16	21	26	29
,, 2nd ,,	–	27	18	7	11	12	14
,, Higher,	–	–	–	–	–	–	–
Latin—1st year,	63	45	27	19	21	24	27
,, 2nd ,,	–	27	17	6	11	11	13
,, Higher,	–	–	–	–	–	–	–
The English Language,	52	46	28	20	24	28	31
History and English Literature, Senior ,, ,,	–	–	25	15	20	16	20
Modern Languages (French, German, Italian),	62	36	41	27	34	37	29
Senior ,,	–	20	28	16	15	15	19
The Celtic Languages,	*The Lectures in each Session open to the Public.*						
Mathematics—1st year,	86	58	40	25	29	33	30
,, 2nd ,,	–	12	11	11	13	11	15
,, Higher,	–	–	–	–	–	–	–
Nat. Philosophy—Higher Class,	–	–	–	–	–	6	6
,, Mathematical Physics, &c.	32	32	46	24	29	23	24
,, Experimental Physics,	48	50	57	29	40	34	36
,, Practical Mechanics,	7	3	8	3	4	3	3
Chemistry,	37	53	63	44	51	60	50
Practical Chemistry,	6	7	14	10	15	14	12
Laboratory,	–	6	6	8	9	9	10
Zoology,	12	34	35	29	31	43	31
Botany,	12	49	46	35	37	46	36
Physical Geography,	–	–	29	17	21	19	20
Logic,	3	–	27	17	21	26	20
Metaphysics,	–	–	18	15	16	11	17
Higher Logic and Metaphysics,	–	–	6	7	7	8	6
Mineralogy and Geology,	*Public.*	6	14	13	15	13	9
Surveying,	10	9	9	6	6	9	4
Civil Engineering,	–	4	6	3	4	3	4
Theory of Agriculture,	11	8	7	2	6	5	5
Practice of Agriculture,	–	5	3	2	5	5	1
Diseases of Farm Animals,	–	5	3	2	5	5	1
Medical Jurisprudence,	2	8	14	10	13	8	10
Anatomy,	25	36	48	45	44	51	44
Practical Anatomy,	27	32	35	49	41	48	53
Practice of Medicine,	9	17	17	12	15	18	33
Practice of Surgery,	24	15	26	29	28	30	48
Materia Medica,	11	14	18	17	17	23	25
Midwifery,	14	10	12	16	17	18	24
Law of Property, Equity of Bankruptcy, Common and Criminal Law, Evidence and Pleading,	17	16	17	15	11	5	10
Jurisprudence and Political Economy, Arts,	–	–	12	2	9	6	8
Civil Law, Constitutional, Colonial, and International Law, Jurisprudence,	11	11	13	8	10	5	9
Arabic,	–	–	–	–	–	–	–
Hindustani,	–	–	–	–	–	–	–
Sanskrit,	–	–	–	–	–	–	–

APPENDIX, No. 2—*continued.*

Appendix No. 2.

Return of Students attending each Class.

RETURN of the NUMBER of STUDENTS attending each CLASS in the Queen's College, Belfast, in each Year—*continued.*

CLASS.	SESSION.						
	'56-57.	'57-58.	'58-59.	'59-60.	'60-61.	'61-62.	'62-63.
Greek—1st year,	24	31	36	45	69	81	83
,, 2nd ,,	12	13	17	23	25	49	63
,, Higher,	–	–	5	4	4	7	7
Latin—1st year,	19	33	34	46	69	84	83
,, 2nd ,,	10	11	18	22	23	49	60
,, Higher,	–	–	2	3	2	6	6
The English Language,	24	36	41	49	72	85	85
History,	19	20	24	24	28	5	8
English Literature,						30	41
Modern Languages (French, German, Italian),	40	40	50	76	140	–	110
Senior ,,	12	16	13	17	10	54	–
The Celtic Languages,	*The Lectures in each Session open to the Public.*						–
Mathematics—1st year,	35	39	45	61	83	93	102
,, 2nd ,,	17	16	14	13	13	13	15
,, Higher,	–	–	4	6	3	–	5
Nat. Philosophy—Higher Class,	8	7	4	9	–	–	–
,, Mathematical Physics, &c.	19	26	25	24	64	67	72
,, Experimental Physics,	37	41	28	42	87	86	94
,, Practical Mechanics,	2	7	3	4	4	–	2
Chemistry,	70	60	74	81	64*	89	89
Practical Chemistry,	10	11	14	21	21	20	24
Laboratory,	15	10	11	10	12	15	15
Zoology,	43	34	63	56	37*	57	68
Botany,	44	34	82	55	40*	56	62
Physical Geography,	21	28	23	28	30	7‡	7
Logic,	27	22	29	29	35	65	66
Metaphysics,	20	15	19	15	24	22	34
Higher Logic,	7	9	8	–	–	10	12
Mineralogy and Geology,	20	13	11	16	7†	11	10
Engineering, 1st year,	15	7	7	12	9	10	11
Engineering, 2nd year,	2	7	3	4	4	6	11
Engineering, 3rd year,	–	–	–	–	–	–	3
Theory of Agriculture,	4	7	7	7	6	6	6
Practice of Agriculture,	1	3	1	4	3	1	–
Diseases of Farm Animals,	1	4	2	3	2	1	–
Medical Jurisprudence,	15	16	13	17	14	18	16
Anatomy,	39	39	59	60	86	83	83
Practical Anatomy,	33	41	44	62	80	65	91
Practice of Medicine,	27	19	22	29	25	42	27
Practice of Surgery,	32	30	29	39	51	53	53
Materia Medica,	11	18	22	27	23	38	37
Midwifery,	13	7	17	14	26	36	22
Law of Property, Equity of Bankruptcy, Common and Criminal Law, Evidence and Pleading,	14	12	13	16	16	14	12
Jurisprudence and Political Economy, Arts,	2	18	9	7	10	8	18
Civil Law, Constitutional, Colonial, and International Law, Jurisprudence,	10	10	11	17	10	12	11
Arabic,	–	–	–	1	–	–	–
Hindustani,	–	–	–	2	3	2	3
Sanskrit,	–	–	–	8	3	4	5
Operative Surgery,	–	–	–	–	–	–	11

* No Arts Students this Session, owing to change of Statutes.
† No Engineering Students this Session, owing to change of Statutes.
‡ Not now required in third year Arts.

APPENDIX,

RETURN of the AMOUNT of FEES received by each

Professor of	1849–50.	1850–51.	1851–52.	1852–53.	1853–54.	1854–55.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Greek,	*88 10 0	83 0 0	50 0 0	27 5 0	38 5 0	46 5 0
Latin,	*73 15 0	79 0 0	50 10 0	31 5 0	38 5 0	44 5 0
English History and Literature,	50 5 0	50 5 0	47 10 0	31 5 0	43 5 0	45 5 0
Logic and Metaphysics,	6 0 0	–	†59 5 0	34 5 0	37 15 0	41 0 0
Mathematics,	116 15 0	97 10 0	69 15 0	43 0 0	54 10 0	59 0 0
Natural Philosophy,	79 5 0	70 15 0	99 10 0	47 0 0	73 15 0	76 15 0
Chemistry, Practical Chemistry,	85 5 0	104 0 0	117 5 0	91 10 0	111 10 0	131 15 0
Anatomy & Physiology, Practical Anatomy,	143 0 0	170 0 0	195 15 0	230 10 0	228 0 0	250 0 0
Natural History and Botany,	20 10 0	69 0 0	70 15 0	50 15 0	55 0 0	76 15 0
Modern Languages,	97 0 0	84 0 0	63 0 0	50 0 0	61 0 0	85 0 0
Mineralogy and Geology,	–	7 10 0	24 15 0	17 15 0	20 15 0	18 0 0
Jurisprudence and Political Economy,	20 0 0	21 0 0	35 15 0	18 15 0	28 0 0	14 10 0
English Law,	32 0 0	29 0 0	37 0 0	23 0 0	20 0 0	16 0 0
Civil Engineering,	16 0 0	24 10 0	22 0 0	14 0 0	17 15 0	21 0 0
Agriculture and Medical Jurisprudence,	15 10 0	41 0 0	49 5 0	22 0 0	46 0 0	32 15 0
Practice of Medicine,	17 0 0	31 0 0	32 0 0	18 0 0	30 0 0	30 0 0
Surgery,	41 0 0	21 10 0	36 0 0	51 0 0	43 0 0	43 0 0
Materia Medica,	22 0 0	28 0 0	26 0 0	29 0 0	33 0 0	43 0 0
Midwifery,	28 0 0	18 0 0	22 0 0	27 0 0	31 0 0	33 0 0
Teacher of Drawing,	–	–	–	–	–	–

* In the Session of 1849–50, Medical Students were required to attend the Greek and Latin Classes, but have since been exempt from attending either class.

† Professor M'Cosh was appointed in Session 1851–52, and taught and received fees from Students properly belonging to the previous Session.

Queen's College, Belfast, March, 1862.

Appendix, No. 4.

Expenditure of One Year's Additional Grant.

APPENDIX,

ACCOUNT of the EXPENDITURE of ONE YEAR'S ADDITIONAL GRANT of

1. Library of Ancient and Modern Literature and Philology:

	£ s. d.
Ancient Classical Languages and Philology,	66 5 0
English History and Literature,	26 8 9
Foreign Modern Languages,	45 16 10
Works of General Interest, &c.,	164 0 6
	302 11 1

2. Libraries, Museum, &c., Mathematical, Physical, and Chemical Sciences:

Mathematical Library,	17 1 8
Physical Library,	43 7 0
Chemical Library,	26 15 0
Museum and Cabinet of Physical Science,	58 14 9
,, Laboratory, Chemical Science,	77 9 5
	223 7 10

No. 3.

Professor in the Queen's College, Belfast, in each Year.

1855–56.			1856–57.			1857–58.			1858–59.			1859–60.			1860–61.			1861–62.			1862–63.		
£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
51	15	0	44	15	0	51	0	0	78	0	0	*93	5	0	*131	15	0	*186	0	0	*187	15	0
47	15	0	39	15	0	53	0	0	87	0	0	†90	0	0	127	15	0	185	0	0	185	15	0
59	5	0	43	15	0	57	10	0	69	0	0	94	15	0	117	5	0	155	10	0	164	5	0
41	15	0	48	5	0	46	15	0	68	10	0	39	0	0	58	10	0	106	5	0	134	10	0
60	10	0	62	15	0	69	10	0	97	10	0	139	10	0	156	0	0	183	5	0	211	5	0
59	10	0	62	15	0	72	0	0	66	10	0	61	5	0	180	10	0	178	15	0	194	10	0
105	10	0	133	0	0	113	10	0	147	5	0	184	0	0	167	0	0	195	15	0	210	5	0
256	0	0	181	0	0	206	0	0	262	10	0	307	0	0	427	10	0	‡432	10	0	‡425	10	0
59	10	0	56	0	0	52	10	0	105	5	0	94	10	0	70	0	0	96	10	0	120	5	0
74	0	0	86	0	0	96	0	0	120	0	0	159	10	0	277	0	0	319	5	0	270	15	0
12	10	0	37	0	0	20	5	0	21	15	0	24	15	0	11	10	0	16	5	0	20	10	10
29	5	0	22	10	0	31	15	0	28	10	0	36	10	0	28	10	0	25	15	0	37	10	0
21	0	0	27	0	0	21	0	0	25	0	0	28	0	0	28	0	0	25	0	0	21	0	0
13	10	0	27	0	0	22	0	0	22	15	0	24	15	0	32	0	0	40	15	0	70	0	0
26	0	0	25	10	0	40	5	0	31	5	0	47	0	0	43	0	0	§44	0	0	§36	15	0
56	0	0	43	10	0	26	0	0	37	0	0	44	0	0	37	0	0	64	10	0	46	0	0
74	0	0	42	10	0	34	0	0	46	0	0	65	10	0	79	13	0	84	12	0	96	11	0
45	0	0	20	0	0	34	0	0	39	0	0	50	0	0	60	0	0	69	0	0	70	0	0
44	0	0	24	0	0	12	0	0	28	0	0	25	0	0	48	0	0	63	0	0	36	0	0
–			32	0	0	25	0	0	26	0	0	22	0	0	–			–			–		

* Besides for Sanskrit and Hindustani 1859–60, £35; 1860–61, £22 10*s.*; 1861–62, £25; 1862-3, £32 10*s.*

† Besides for Arabic in 1859–60, £5.

‡ The Professor of Anatomy pays to his Demonstrator a portion of the fees for Practical Anatomy.

§ No endowment for Medical Jurisprudence. Professor Hodges delivers the lectures, receiving only class fees.

ALEXANDER DICKEY, *Bursar.*

Appendix, No. 4.

No. 4.

£1,600, to the Queen's College, Belfast, ending 31st March, 1862.

Expenditure of One Year's Additional Grant.

3. Libraries, Museum, and Collection of Objects of the Department of the Natural Sciences:

	£	*s.*	*d.*
Library of Natural History,	59	9	10
,, Geology and Mineralogy,	13	5	0
Museum of Natural History,	70	2	2
,, Geology and Mineralogy,	31	12	0
,, Materia Medica.	13	14	2
,, Arts,	25	3	0
	213	6	2

4. Libraries, Museums, and Collections of Objects of the Departments of Engineering and Agriculture:

	£	*s.*	*d.*
Library of Engineering,	36	16	3
,, Agriculture,	9	12	7
Instruments and Collections of Engineering,	46	7	3
Collections of Agriculture,	13	10	10
	106	6	11

Appendix, No. 4.

Expenditure of One Year's Additional Grant.

APPENDIX, No. 4—*continued.*

ACCOUNT of the EXPENDITURE of ONE YEAR'S ADDITIONAL GRANT of £1,600, to the Queen's College Belfast, ending 31st March, 1862—*continued.*

	£	s.	d.
5. Museum and Library of Medical Science:			
Library of Medical Works,	74	9	6
Anatomical and Pathological Museums, and Rent of Anatomical Rooms,	83	12	11
Surgical Museum,	27	0	6
Midwifery,	13	10	4
Medical Jurisprudence,	19	4	9
	217	18	2
6. Library of Metaphysical, Legal, and Economical Science:			
Law, Jurisprudence, and Political Economy,	23	0	3
Metaphysics,	52	3	3
	75	3	6
7. Printing, Stationery, Advertising, Postages, Office Expenses, &c.,	346	14	1
8. Heating and Lighting,	152	12	7
9. Botanic Gardens, £50; Grounds, £67 16*s.* 8*d.*,	117	16	8
	1,735	17	0
Balance in Bank of Ireland Office, 31st March, 1862,	317	1	5
Total,	2,052	16	5

	£	s.	d.
Amount of One Year's additional Grant,	1,600	0	0
College and Matriculation Fees,	123	0	0
Received for Calendars, Catalogues, &c., sold, and Fines,	14	4	6
Balance in Bank, 31st March, 1860,	315	13	11
Total,	2,052	18	5

The Accounts of the College up to 31st March, 1862, have been examined and found correct, by the Commissioners for Auditing the Public Accounts.

April, 1863.

ALEXANDER DICKEY, *Bursar.*

APPENDIX, No. 5.

General Class Examinations, Queen's College, Belfast.

	Session 1861–62.			A.M.	P.M.	Session 1862–63.			A.M.	P.M.
The English Language,	Saturday,	January	11	—	12—4	Saturday,	January	10	—	12—4
Logic,	Saturday,	February	15	9—12	—	Saturday,	February	14	9—12	—
Zoology,	Friday,	February	28	9—12	—	Friday,	February	27	9—12	—
Metaphysics,	Tuesday,	April	15	9—12	and 2—5	Tuesday,	March	31	9—12	and 2—5
Physical Geography,	Wednesday,	April	16	9—12	—	Wednesday,	April	1	9—12	—
Mineralogy and Geology,	Wednesday,	April	16	—	2—5	Wednesday,	April	1	—	2—5
History and English Literature,	Thursday,	April	17	9—12	and 2—5	Thursday,	April	2	9—12	and 2—5
Midwifery,	Saturday,	April	19	9—12	—	Monday,	April	27	9—12	—
Practice of Medicine,	Saturday,	April	26	—	2—5	Monday,	April	27	—	2—5
Anatomy and Physiology,	Monday,	April	28	9—12	and 2—5	Monday,	April	28	9—12	and 2—5
Practical Anatomy,	Tuesday,	April	29	9—12	—	Wednesday,	April	29	9—12	—
Practice of Surgery,	Tuesday,	April	29	—	—	Wednesday,	April	29	—	2—5
Materia Medica,	Wednesday,	April	30	9—12	—	Thursday,	April	30	9—12	—
Medical Jurisprudence,	Wednesday,	April	30	—	2—5	Thursday,	April	30	—	2—5
Practical Chemistry,	—	—		—	—	—	—		—	—
Modern Languages,	Monday,	June	2	9—12	and 2—5	Wednesday,	June	3	9—12	and 2—5
Greek (First Year),	Thursday,	June	5	9—12	and 2—5	Thursday,	June	4	9—12	and 2—5
,, (Second Year),	Friday,	June	6	9—12	,, 2—5	Friday,	June	5	9—12	,, 2—5
Latin (First Year),	Friday,	June	6	9—12	,, 2—5	Friday,	June	5	9—12	,, 2—5
,, (Second Year),	Thursday,	June	5	9—12	,, 2—5	Thursday,	June	4	9—12	,, 2—5
Surveying,	Friday,	June	6	9—12	—	—	—		—	—
Engineering and Surveying,	—	—		—	—	Friday,	June	5	9—12	and 2—5
Mathematics,	—	—		—	—	Saturday,	June	6	9—12	,, 2—5
Mathematics (First Year),	Saturday,	June	7	9—12	and 2—5	—	—		—	—
,, (Second Year),	Saturday,	June	7	9—12	,, 2—5	—	—		—	—
,, ,,	Monday,	June	9	9—12	—	—	—		—	—
Natural Philosophy,	Friday,	June	9	9—12	,, 2—5	Monday,	June	8	9—12	,, 2—5
Chemistry,	Tuesday,	June	10	9—12	,, 2—5	Tuesday,	June	9	9—12	,, 2—5
Botany,	Tuesday,	June	10	9—12	—	Wednesday,	June	10	9—12	—
Civil Engineering,	Tuesday,	June	10	9—12	—	—	—		—	—
Practice of Agriculture, Diseases of Farm Animals, Theory of Agriculture,	Tuesday,	June	10	9—12	—	Wednesday,	June	10	—	,, 2—5

General Examination of Students in Law, and also of Students in the Faculty of Arts, in Jurisprudence and Political Economy, at the close of the Lectures on these subjects.

Appendix, No 6.

Lectures delivered by Professors.

APPENDIX, No 6.

Return of the Number of Lectures delivered by each Professor in the Queen's College, Belfast, in each Year.

	1849-50	'50-51.	'51-52.	'52-53.	'53-54.	'54-55.	'55-56	'56-57.	'57-58.	'58-59	'59-60.	'60-61.	'61-62.	Remarks.
Professor of— Greek, . . .	135	232	244	246	236	240	234	235	236	350	500*	460*	440*	In addition, examining some hundreds of exercises each session.
Latin, . .	162	107	215	221	169	196	232	230	230	275	308	234	234	Do. do.
History and English Literature, . .	35	55	98	61	104	100	105	105	99	110	123	62	154	Besides 658 exercises.
Modern Languages, .	205	330	324	307	306	305	319	340	360	307	340	372	372	
Celtic, . .	6	6	6	6	6	6	6	6	6	6	6	6	–	Open to the Public without charge.
Mathematics, .	135	256	333	248	246	330	346	332	330	400	400	370	370	Besides two hours each week on which the Senior Scholar meets the Junior Division.
Natural Philosophy, .	122	257	283	209	256	250	255	307	300	300	242	242	213	
Chemistry, . . .	134	136	157	129	132	130	136	142	142	140	132	132	132	In addition, superintending the working pupils, of whom from eight to twelve are admitted each year by examination to the laboratory without charge.
Practical Chemistry, .	36	36	36	36	36	36	36	36	34	36	36	36	36	
Natural History, . .	120	120	133	167	139	138	142	140	148	140	140	140	140	Including lectures in Physical Geography, delivered free to all students.
Mineralogy and Geology,	*Public.*	86	54	59	54	58	40	59	53	52	52	52	52	In addition, daily attendance as Curator in the Museum.

Logic and Metaphysics,	–	–	76	142	176	175	184	177	179	157	140	156	194	In addition, criticising above 400 Essays in each session.
Civil Engineering, .	134	138	140	136	140	136	147	118	100	194	196	220	198	Including practical work under the direction of the Professor.
Agriculture, . .	172	206	295	212	209	213	218	186	190	166	166	156	156	Including lectures on Medical Jurisprudence and Diseases of Farm Animals, for neither of which there is any salary; in addition, practical excursions with students.
Anatomy & Physiology,	115	116	115	115	114	115	117	113	115	115	115	112	108	In addition, superintending the class of Practical Anatomy and Demonstrations and Dissections.
Practice of Medicine, .	33	93	92	52	93	94	94	85	75	85	95	85	95	
Practice of Surgery, .	95	94	93	51	51	92	94	94	94	94	54	84	94	Besides about twenty-five lectures each session on Operative Surgery.
Materia Medica, . .	92	91	91	93	90	90	82	80	84	84	84	84	84	
Midwifery, . . .	92	92	92	91	90	93	93	93	93	95	90	90	60	Besides practical instruction to students which may be required at any hour throughout the year.
English Law, .	24	48	72	96	96	90	56	96	96	56	75	72	96	No third year Class in 1859-60, or fourth year Class in 1860-61.
Jurisprudence and Political Economy, .	24	46	96	120	120	120	120	120	120	96	120	120	120	

The above Return gives the number of Meetings of one hour each, in each Class. The system of instruction includes, not merely formal Lectures, but also examination in the business of the course; in some classes these examinations are held daily; in others on fixed days of the week, according to the nature of the subject.

The Professors also conduct the General Scholarship Examinations; and some of them, in addition, the Matriculation and Supplemental Examinations.

* Including about 110 on Sanskrit and Hindustani.

October Examinations of Queen's College, Belfast, 1862.

Days.	Hours.	First Year Students.	Second Year Students.	Third Year Students.	Fourth Year Students.
Tuesday, Oct. 20.	9—12		Suppl. Ex. { English Mod. Lang. Math.	Suppl. Ex.—Mod. Lang., Math., Nat. Phil.	Senior Schol.—Latin.
	2—5		Suppl. Ex.—Greek, Latin.	Suppl. Ex.—Greek, Latin, Logic.	Senior Schol.—Latin.
Wednesday, Oct. 21	9—12		Liter. Schol.—Greek.		Senior Schol.—Greek.
	2—5		Liter. Schol.—Greek.		Senior Schol.—Greek.
Thursday, Oct. 22.	9—12		Med. Engin. Agric. } Schol.—Chem.		Senior Schol.—Chem.
	2—5	Matric.—Math.	Med. Engin. Agric. } Schol.—Chem.		Senior Schol.—Chem.
Friday, Oct. 23.	9—12	Matric.—Greek, Latin.	Liter. Schol.—Mod. Lang.		Senior Schol.—Mod. Lang.
	2—5		Liter. Schol.—Mod. Lang.		Senior Schol.—Mod. Lang.
Saturday Oct. 24.	9—12	Matric.—English.	Liter. Schol.—Latin. Engin. Schol.—Geo. Draw.		Senior Schol.—Mod. Hist.
	2—5	Matric.—English.	Liter. Schol.—Latin. Engin. Schol.—Geo. Draw.		Senior Schol.—Mod. Hist.

Monday, Oct. 26.	9—12		Med. Agric. } Schol.—Botany	Sci. Schol.—Math	Senior Schol.—Nat. Hist.
	2—5	Lists of Matriculated Students to be made out.	Liter Schol.—English. Agric. Med. } Schol.—Zoology	Sci. Schol.—Math.	Senior Schol.—Nat. Hist.
Tuesday, Oct. 27.	9—12	Science Med Engin } Schol.—Math. Agric. Schol.—Arith	Science Engin. } Schol.—Math.	Sci. Schol.—Logic	Senior Schol.—Math
	2—5	Science Med Engin. } Schol.—Math.	Science Engin } Schol.—Math Med. Schol.—Anat. and Phy.	Liter Schol.—Latin. Med. Schol.—Anat. and Phy.	Senior Schol.—Math. Med. Schol—Pr. of Midw.
Wednesday, Oct. 28	9—12		Agric. Schol.—Agriculture.	Liter Schol.—Mod. Lang Med. Schol.—Prac. Chem.	Senior Schol.—Nat. Phil. Med Schol.—Pr of Med.
	2—5	Liter. Med Agric. } Schol.—English.	Engin. Schol.—Exp. Phys.	Sci. Schol—Nat. Phil. Liter Schol.—Mod. Lang.	Senior Schol—Nat. Phil.
Thursday, Oct. 29	9—12	Liter. Med. } Schol.—Greek.		Liter Schol—Greek. Med. Schol.—Mat. Med.	Senior Schol.—Pol. Econ. Med Schol.—Med. Juris.
	2—5	Liter. Med } Schol.—Latin.		Liter. Schol.—Latin.	Senior Schol—Pol Econ Med. Schol.—Surg Anat.
Friday, Oct. 30	9—12	Liter Med. } Schol.—Latin			Senior Schol.—Metaph. Med. Schol.—Anatomy.
	2—5	Liter Med } Schol.—Greek.		Liter. Schol.—Greek.	Senior Schol.—Metaph. Med Schol.—Physiology.

Students passing the Supplementary Examinations complete the previous year, and take rank accordingly

HOURS OF LECTURES,—SESSION 1862–63.

Hours.	Arts.			Civil Engineering.			Agriculture.		Medicine.
	1st Year	2nd Year	3rd Year	1st Year	2nd Year	3rd Year	1st Year	2nd Year	
9 till 10	*French.* Monday Wednesday Thursday *German.* Tuesday Friday	*Mathematics* Monday Tuesday Wednesday Thursday Friday		*French.* Monday Wednesday Thursday *German.* Tuesday Friday	*Mathematics* Monday Tuesday Wednesday Thursday Friday				
10 till 11	*Mathematics.* Monday Tuesday Wednesday Thursday Friday	*French.* Monday Wednesday Thursday *German* Tuesday Friday	*Honor Classes.*	*Mathematics.* Monday Tuesday Wednesday Thursday Friday				*Practical Agriculture.* Tuesday Saturday	
11 till 12		*Nat. Philos.* *Exp. Phys.* Monday Wednesday Friday *Mat Phys.* Tuesday Thursday	*Eng Lit.* Monday Wednesday Friday	*Exp. Phys.* Monday Wednesday Friday *Geom. Drawing* Tuesday Thursday	*Mineralogy and Geology* Monday Wednesday Friday *Mat Phys* Tuesday Thursday	*Office and Field Work* Tuesday Thursday	*Exp. Phys.* Monday Wednesday Friday *Theor Agric* Tuesday Saturday	*Mineralogy and Geology* Monday Wednesday Friday *Surveying* Saturday	*Exp Phys* *3 months* Monday Wednesday Friday *Prac Chem* *3 months, from Mar 1*
12 till 1	*Greek* Monday Thursday Friday	*Latin* Monday Wednesday Friday	*Metaphysics* Tuesday Wednesday Thursday Friday *History.* Monday Wednesday Friday	*Geom., Drawing, &c Office Work.* Tuesday Thursday	*Office and Field Work* Tuesday Thursday	*Office and Field Work* Tuesday Thursday		*Surveying* Saturday	*Anatomical Demonstrations.* Monday Tuesday Wednesday Thursday Friday

1 till 2	*Latin.* Monday Wednesday Friday	*Greek.* Monday Thursday Friday	*Zool. to Mar 1.* Monday Tuesday Wednesday Friday *Bot. from Mar 1* Monday Tuesday Wednesday Thursday Friday	*Civil Eng* Monday Wednesday	*Nat. Philos. applied.* Tuesday Thursday	*Zool. and Bot* Monday Tuesday Wednesday Thurs. (*Bot.*) Friday	*Surveying* Saturday	*Zool. to Mar 1.* Monday Tuesday Wednesday Friday	*Bot. from Mar. 1* Monday Tuesday Wednesday Thursday Friday	*Surgery* Monday Tuesday Wednesday Thursday	*Med. Juris* Friday
2 till 3	*English.* Monday Tuesday Wednesday Friday	*Logic.* Tuesday Wednesday Thursday Friday	*Pol. Economy.* Tuesday Thursday Friday			*Civil and Mech. Eng.* Monday Wednesday				*Anatomy* Monday Tuesday Wednesday Thursday Friday	
3 till 4			*Chemistry.* Monday Tuesday Wednesday Thursday Friday	*Chemistry* Monday Tuesday Wednesday Thursday Friday	Field Work and Engineering Excursions for 2nd and 3rd Year Students occasionally on Fridays and Saturdays for some hours		*Chemistry.* Monday Tuesday Wednesday Thursday Friday		*Chemistry* Monday Tuesday Wednesday Thursday Friday	*Midwifery* Monday Tuesday Thursday Friday	*Medical Jurisprud* Wednesday
4 till 5			Chemical Laboratory open from 9 A.M. till 3 P.M.						*French* Monday Thursday or from 9-10 a.m.	*Materia Med.* Monday Tuesday Wednesday Thursday	*Prac. Med.* Monday Tuesday Wednesday Thursday
7			*Jurisprud.* Monday Wednesday Friday								

FACULTY OF LAW—HOURS OF LECTURES

1st Year				2nd Year.				3rd Year		4th Year					
6 o'clock, P.M.	*Law of Property* Monday Wednesday Friday	7 o'clock, P.M.	*Jurisprudence.* Monday Wednesday Friday	6 o'clock, P.M.	*Equity and Bankruptcy* Monday Wednesday Friday	8 o'clock, P.M.	*Civil Law* Monday Wednesday Friday	11 o'clock, A.M.	*Common and Criminal Law.* Tuesday Thursday Saturday	10 o'clock, A.M.	*Evidence and Pleading* Tuesday Thursday Saturday	6 o'clock, P.M.	*Constitutional & Colonial Law.* Monday Wednesday Friday	1&30 o'clock, p.m.	*Medical Jurisprudence.* Wednesday, 3 o'clock Friday, 1 o'clock

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Digest of Subjects and Courses.

APPENDIX, No. 7.

An Enlarged Digest of Subjects and Courses pursued in Queen's College, Belfast.

Greek—*Professor, Charles MacDouall,* LL.D., M.R.A.S.

In the Greek Class, as in all those which are attended during more than one session, the business, as well as the hours assigned to the Students of the different years, is necessarily different; but it is always distributed into three simultaneous processes, viz., public examinations, lectures more or less formal, and exercises written at home and commented on in the class.

In the first session, the complex and self-contained structure of the Greek language is subjected to a close analysis; carried out, on the one hand, by tracing words to their crude forms, by classifying terminations, both the primary and the flexional, and by discriminating among analogically correct forms those actually used in different ages and dialects; on the other hand, by exhibiting the methods by which words are combined in simple clauses, clauses are knit into sentences, and sentences compose periods less or more complicated. Some prose-work furnishes the materials for this analysis; while the Students read and translate it, or else re-translate off-hand passages read out in English before them by the Professor. Besides syntactical phænomena, the laws and characteristics of both epic and dramatic versification are expounded and exemplified, while a portion of the *Ilias* and some tragedy are used as text-books.

In the second session, while consecutive passages of Herodotus along with some Attic oration or philosophical treatise, and a book of the *Odysseia* along with some Attic tragedy or comedy, form the basis of prelections, the previous discipline is continued and extended; the distinctions of dialect and style are more fully elucidated; the origin, growth, and fortunes of the epos, the drama, history, and other departments of literature, are more distinctly unfolded; discussions on points of mythology, geography, chronology, archæology, æsthetics, &c., are more freely introduced and more amply treated. The Students are required to turn Herodotean Greek, at sight, into Attic, altering both the forms of words and the structure of sentences; to re-translate passages into Greek prose and verse; and also to give in original essays in both forms of composition.

Considering the variety of subjects which enter simultaneously into the first and second Sessions of the Collegiate Course, the Students generally appear to give a fair share of their attention to the Greek Language and Literature. Several times in the week a considerable number voluntarily attend extra Lectures, at which no note is taken of their presence or of their absence.

In a distinct or higher class, advanced Students, generally in the third or fourth year of their Course, are exercised in the study of more difficult works than those previously read, in the higher problems of criticism and philology, and especially in composing both prose and verse.

The following text-books have been used in the successive Sessions of College from 1849–50 to 1861–62:—*Ilias*, Books III., VI., X., XI., XII., XIII., XIV., XV., XVI., XVII., XVIII., XXI., XXII., XXIV.; *Odysseia*, Books I., XI., XII.; Hesiodus, *Theogonia;* Pindarus, *Olympia, Pythia, Nemea;* Aeschylus, *Prometheus Vinctus, Septem c. Thebas, Agamemnon, Choëphoroi, Eumenides;* Sophocles, the seven Tragedies; Euripides, *Alcestis, Hippolytus, Hecabe, Phoenissae, Orestes, Bacchae, Ion, Iphigeneia in Aulide, Iphigeneia in Tauris;* Aristophanes, *Nubes, Aves, Ranae;* Herodotus, Books I., II., IV.; Thucydides, Books I., II.; Xenophon, Portions of *Anabasis* and *Cyropaedeia;* Platon, *Apologia Socratis, Gorgias, Phaedon, Phaedrus, Philebus, Timaeus;* Aristoteles, *Poetica* and Portions of *Rhetorica;* Demosthenes, *c. Meidiam* and *de Corona;* Aeschines, *in Ctesiphontem.*

Sanskrit and Hindustani.

The Classes for these Languages (conducted by the Professor of Greek) are at present attended chiefly by Students who either have already obtained or are preparing to compete for Appointments in the Indian Service; but the Sanskrit

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Class begins to attract others also, as the importance of some practical acquaintance with Sanskrit, especially in relation to Classical Studies and to Comparative Philology, is now generally recognised.

Either Class may be attended separately; or a two years' Course may be taken, in which Sanskrit alone is studied during the first year, while Sanskrit and Hindustani (including the elements of Persic) occupy the second.

LATIN—*Professor, Charles Parsons Reichel*, D.D.

The Course read in the Latin Classes during the Session of 1860–61, was—

Senior Class.—Tacitus, Germania, and Agricola, and Annals, Book I.; Cicero, de Natura Deorum; Terence, Juvenal, Horace.

Junior Class.—Livy, Book XXVI.; Terence, Cicero's Epistles, Plautus.

The Junior Class is that composed of Students of the *First Year;* the Senior, that composed of Students of the *Second Year.*

The Professor, therefore, has each set of Students only two years, at most, under his care; no attendance on Lectures in Latin or Greek being required of Students in their Third Year.

The Professor requires the Class to prepare for each Lecture a certain portion of the authors in course of being read. The Professor sometimes translates to the Class, sometimes requires them to translate aloud, making such corrections and observations as may be necessary fully to explain the passage, and to throw light on the idiom of the author, and the structure and analogy of the language. Besides this, full statements of the historical and legal points involved in the authors read, are furnished by him.

Voluntary Classes were held four times a-week, in which Composition is specially attended to. The attendance at these Classes has been exceedingly good.

An advanced Latin Class has been formed during the last four Sessions, attended by Students of the third or fourth year, who may wish to carry on the study of the Latin language beyond the point at which the prescribed course leaves them. This Class cannot be numerously attended, as the time of Students of the Third Year is so much taken up with their prescribed Courses in other branches, that those who attend it have to do so under the greatest difficulty; and probably nothing but the impossibility of successfully competing with Students from other Universities, without a greater knowledge of Latin than the regular College Course will enable them to acquire, has induced any Students to attend it.

HISTORY AND ENGLISH LITERATURE.—*Professor, George Lillie Craik*, LL.D.

The Professor of History and of English Literature has now three Classes: one entitled the Class of the English Language, which is taught for one Term, and is attended, according to the Curriculum for Degrees in Arts, by Students of the First Year; the others entitled the Classes of English Literature and of History, taught for two Terms, and attended by Students of the Third Year.

It is important to observe, that by this arrangement there is added, to the two distinct subjects which are combined in the designation of the chair, a third subject perfectly distinct from either; each of the three, at the same time, like every other great department of human knowledge and speculation, having several subdivisions.

I. The Class of the English Language is taught by means of—

1. A Course of Lectures on the origin, history, and constitution of the language, and on the principles of Universal Grammar.
2. Examinations on a printed text-book, prepared by the Professor, entitled, "Outlines of the History of the English Language."
3. Exercises in Composition, both in prose and verse; and
4. A Course of Critical Readings, directed more especially to the philology of the language, both in its principles and in its details.

The business of the Class, thus conducted, may be stated to comprehend the subjects of Universal Grammar, or the Philosophy of Language generally, with the elements of Comparative Grammar and of Linguistic Ethnology, the Philology of the English Language, and the Practice of English Composition.

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II. The subject of English Literature is treated both historically and in reference to the principles of æsthetic and critical science. For the history of our literature, a work of the Professor's, entitled "A Manual of English Literature and of the History of the English Language," is employed as a text-book; and a Course of Lectures is delivered on the subject of Literature as one of the forms of the Artistic. There are regular examinations both on the text-book and on the Lectures; and essays, or other exercises in writing, are exacted.

III. The teaching of History has hitherto embraced the Outlines of Historical Geography; the Elements of Chronology; a Sketch of the General History of the World; a Course of Lectures on the Science of Historical Investigation; and a minute survey, by way of illustration, of various portions of the History of England, including the progress of the constitution and of society, as well as the course of public events and transactions, with special reference to the original authorities, and to the bibliography of the subject. Examinations are regularly held, the Students being left to collect the facts necessary to be remembered from the Lectures, and from any of the common histories.

MODERN LANGUAGES.—*Professor, Wilhelm Frädersdorff,* PH.D.

French and German, between which languages the Students have an option, are taught at distinct hours.

In the First Year the Grammar is explained, and the Students are exercised chiefly in translating passages from French or German rather than in translating English passages into either language.

During the Second Year one day in each week is devoted to the study of some Foreign Classical work in prose, and a second to reading and commenting upon tragedy or poem; while the third day is occupied partly in revisal of work previously done, but chiefly in translating some English passage into French or German, and in conversation upon a literary subject introduced in a paper which has been read aloud by the Professor.

In the Third Year the Students, having been now well drilled in Grammar, are trained in Original Composition and in translating from one Modern Language into another, and their attention is also directed to the principles of Comparative Philology. French or German, as the case may be, is used exclusively in conversation.

Medical Students, of course, though meeting at different hours from others, are instructed in the same way. Some foreign work, recommended by the Medical Professors, is made a text-book—for instance, at present, Dr Barnard's "Physiologie Expérimentale."

The disparity among the Students in point of preparation has obliged the Professor to make one or more subdivisions of each Class, and thus rendered his duties very onerous. Hence, for the present at least, he feels precluded from teaching systematically any other languages than French and German. Latterly, however, he has begun to explain the connexion between the Teutonic and Danish tongues to a class of Students who take an intelligent interest in linguistic investigations.

MATHEMATICS—*Professor, ad interim, H. J. Sharpe.*

Attendance on this Class is prescribed to all Students in the Faculty of Arts during the first year of their Course; during the second year they are required to attend either a higher Course of Mathematics, or of Latin and Greek.

All Students in the Department of Engineering are required to attend the Mathematical Classes during two years.

Before entering, Students are required to pass an examination in the First and Second Books of Euclid, and in a small portion of Algebra. Practically they are generally well prepared in the prescribed portions of Euclid, while, on the contrary, it has been necessary, with a large portion of the Class, to commence the instruction in Algebra from the very beginning. A considerable number of the Students are Candidates for Mathematical Scholarships at entrance, and these are generally well prepared in the first six Books of Euclid, and a considerable portion of Algebra and Plane Trigonometry.

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On this account the instruction of the First Year in Mathematics has been given in two Divisions. The Lower Division has been carefully taken through such portions of Euclid I., II., III., IV., VI., as they had not previously prepared, and has received instructions in Algebra as far as the progressions, and in Plane Trigonometry as far as the solution of triangles, with the use of logarithms and trigonometrical tables. The instruction of the Upper Division comprises a complete Course of Algebra and Trigonometry, with the principal historical properties of the Conic Sections, treated geometrically.

The Council has sanctioned the employment of the Senior Mathematical Scholar in giving a portion of the instruction of the Lower Division. This arrangement, while it affords a greater number of hours to the Lower Division, enables the Professor of Mathematics to give more attention to the Upper Division, and has been found to work very satisfactorily.

In the Second Year the subjects of Lecture are Analytical Geometry, the Differential and Integral Calculus, and the first three sections of the Principia of Newton; and, in addition to this, when the progress of the Students has been sufficiently rapid during the early part of the Session, the solution of the simpler kinds of Differential Equations, and the principles of Analytical Geometry of Three Dimensions. Spherical Trigonometry and the Theory of Equations are not included in the subjects of Lecture, but are required from the Candidates for Science Scholarships of the Third Year.

The instruction is carried on in great part by questions, which the Students are required to work out at the time, under the eye of the Professor, the questions having reference to those portions of the subject which have just been treated in the Lectures. The Professor then corrects their work, and gives such hints and explanations as are requisite.

During the last two Sessions, at the request of a few advanced Students, a third and higher class has been formed. The subjects of lecture have been Geometry of three dimensions, Finite Differences, Calculus of Functions, Calculus of Variations, and extended courses of Definite Integrals, Differential Equations, and Theory of Probabilities.

THE PHYSICAL CLASSES—*Professor, John Stevelly*, LL.D.

The subjects taught in the Physical Classes are distributed under three subdivisions: Mathematical Physics, Experimental Physics, and Natural Philosophy applied.

The subjects comprised in the Course of Mathematical Physics are—Mechanics (under its several statical and dynamical subdivisions), Hydrostatics, Hydraulics, Pneumatics, Acoustics, Optics, and Astronomy. The Students who attend this class are the Matriculated Students who are seeking a Degree in Arts, the Engineering Students of the Second Year, and Non-Matriculated Students, some of whom are Candidates for the ministry in the Presbyterian Churches. Attendance at the Lectures three days in each week is imperative on all those Students, and one hour in each week is occasionally employed in asking questions from prescribed parts of Galbraith and Haughton's Manual. Two days in the week attendance is optional, when Analytical Mechanics and the higher branches of Physics are taught. In the Lectures, attendance on which is imperative, such mathematical proofs and illustrations only are introduced as a person reasonably prepared in the six first Books of Euclid and Elementary Algebra might easily comprehend. The teaching is by prelection; and although no text-books are prescribed, the ordinary elementary works on the several subjects are pointed out and referred to. At the Lectures, attendance on which is voluntary, the demonstrations and investigations are pursued in a more systematic and mathematical method, so as to require a knowledge of Analytic Geometry, Conic Sections, and the Differential and Integral Calculus. Text-books are used for the guidance of the Students attending these Lectures, who are chiefly those who are intending to compete for Honors. These text-books are Earnshaw's and Todhunter's Statics, Wilson's Dynamics, Tait's Dynamics of a Particle, Miller's Hydrostatics, Lloyd's Optics and Lectures on the Wave Theory of Light, Herschell's Astronomy, and two of Airy's Tracts, with occasional reference to Du Hamel's Cours de Mecanique, and to Poisson's Works.

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The Class of Experimental Physics is attended by the same Students, and also by Agricultural Students of the Second Year, and by Medical Students of the Third Year. The subjects of these Lectures are taught entirely without mathematical demonstration, by the aid of experiments, illustrations, drawings, and models, and such works as Lardner's Hand-book, Golding Bird's Physics, Webster's Physics, Miller's Chemistry, Vol. I., Arnott's Elements, Biot, Ganot, Pouillet, Peschel, and such like standard works are referred to, and recommended to the attention of the Students. The subjects of Heat, Electricity, and Electro-Magnetism are at present chiefly taught in the Chemical Class; but the leading facts and principles are taught by selections from Biot, Pouillet, Ganot, and Miller.

The Class of Natural Philosophy applied is intended for Students in Engineering of the Third Year, by the recent University Ordinance; lectures and instructions twice in the week. The subjects embraced are the nature and estimate of work done; the kinds of work required to be done; the nature and laws of friction, and other useless resistances; the moving powers at our command, their respective nature and the laws which govern their action; the manner in which they are, by machinery, connected with and opposed to the resistances; the construction of machines; the principles of strength of materials as opposed to strains; the equilibrium of structures, frames, roofs, arches, domes; the general principles of mechanism; general maxims in the structure and working of machines; maximum effects of machines; hydraulic engines; the steam engine. The works used as guides to the studies of the Students in this Class are selections from Lloyd's and Robinson's Mechanics, Willis's Principles of Mechanism, Barlow on Materials and Construction. Hodgkinson's Experimental Researches, Tredgold, Tate's Elementary Treatises and Exercises, and selected numbers of Weale's Rudimentary Series.

CHEMISTRY—*Professor, Thomas Andrews*, M.D., F.R.S., M.R.I.A.

In the Class of Chemistry the greater part of the Course is devoted to pure Chemistry; but the Elements of the Sciences of Heat and Electricity, particularly in their relations with Chemistry Proper, are also taught. The application of these sciences to the arts are particularly referred to; and it has been the constant endeavour of the Professor to communicate to the Students as precise and accurate information as possible on the subjects treated in his Lectures, and to train them to habits of careful observation and accurate thinking. With this view a weekly examination of the whole Class is held, at which the Students are subjected to a searching examination on the business of the preceding week; and further to encourage a taste for scientific inquiry, and also to train a certain number of practical chemists, a limited number of the best Students are admitted, by examination, as working pupils into the chemical laboratory, where they have an opportunity of acquiring a knowledge of chemical analysis. This latter arrangement has now been in practice for several years, and has already been attended with the best results.

NATURAL HISTORY—*Professor, Wyville Thomson*, LL.D.

The Zoological Department of the Course occupies the First Term and greater part of the Second, and comprehends the Outlines of Anatomy and Physiology of animals, followed by Systematic Zoology, and remarks on the distribution of animals.

The Botanical part comprehends Vegetable Anatomy and Physiology, Systematic Botany, and distribution of vegetable forms. In addition to the Class Lectures, meetings are held in the Botanic Garden, and practical excursions made into the neighbouring country.

This Course comprehends chiefly Lectures on the structure and form of continents and islands; the distribution of mountain systems, rivers, and lakes; the ocean, its currents, temperature, &c.; the atmosphere, its currents, &c.; rain, snow, &c. The preceding subjects are considered in relation to the geographical distribution of animals and plants.

These different branches are illustrated by specimens, or drawings, or both, as the case may be.

LOGIC AND METAPHYSICS—*Professor, Rev. James M'Cosh*, LL.D.

LOGIC.

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Students attend this Class four days each week during twelve weeks of the Second Session. On two of these days there are examinations on a text-book of Formal Logic, with short prelections on the said text-book, and also the oral explanation of philosophic terms, the reading of Essays by the Students, and the criticism of them by the Professor. On the other two days the Professor delivers written Lectures. This Course of Lectures is divided into two parts: FIRST, GENERAL LOGIC, or an Exposition of the Laws of Thought in general, that is, whatever be the object of thought, embracing Notions, Judgment, and Reasoning; SECONDLY, PARTICULAR LOGIC, or the Development of the Laws of Thought, as directed to particular classes of objects, comprising Demonstrative Evidence, Probable Evidence, Induction, Analogy, Teleology, and the Relation of the Organon of Bacon to that of Aristotle. The prominent topic in the second part is the Method of Induction, which is treated under the heads:—I. The Means, being generally Systematic Observation, and more particularly Analysis, Observation Proper, Experiment, Hypothesis, Explication of the Conception. II. The End, being the Discovery of Classes (as in Natural History, &c.), or Causes (as in Natural Philosophy, &c.). III. The Canons of Classes and Causes by which we may reach the End by the Means. The Students are required to give in a short written essay once a fortnight. At the Pass Examination, at the close, about one-half of the questions bear upon subjects discussed in the text-book, and the other half upon topics explained in the lectures.

METAPHYSICS.

This Class meets four days each week, and an hour each day, during the first two terms of the Session, and is attended by Students of the Third Year. On one of these days there is a rigid examination, with interspersed remarks by the Professor, on the second half of the Epitome of the History of Philosophy, sanctioned by the University of France (translated by Henry). In this part of the text-book there is an abstract of the doctrines of the more eminent philosophers who have flourished in this country, and on the Continent of Europe, from the time of Bacon to the present day. On another of these days there is an examination on the written lectures, together with the reading and criticism of essays; the Students being required to give in a carefully written essay every fortnight to the Professor, who reads it at home, and selects certain portions of it to be read in the class, where he criticises it. These essays are on the leading subjects discussed in the written lectures. On the other two days the Professor delivers carefully prepared written lectures. He begins the course with a few lectures on the Method of Investigation, which is that of Induction, and on Mind and Body, and then proceeds to divide his course into two parts, PSYCHOLOGY and METAPHYSICS PROPER.

Under PSYCHOLOGY he treats (1) of the Powers or Faculties of the Mind, and (2) of the Laws of the Succession of Thought. He classifies the faculties as follows:—I. The Simple Cognitive Faculties: (*a*) Perception; (*b*) Consciousness. II. The Reproductive Faculties: (*a*) Memory; (*b*) Imagination; (*c*) Symbolic Power. III. The Faculties which Discover Relations: (*a*) of Identity and Difference; (*b*) of Whole and Parts (to which we owe abstractions); (*c*) of Space; (*d*) of Time; (*e*) of Quantity; (*f*) of Resemblance (to which we owe the Discovery of Classes); (*g*) of Active Property; and (*h*) of Cause and Effect. IV. The Conscience. V. The Emotions; and VI. The Will. In this course of lectures, which occupies two-thirds of the session, the method of operation and peculiarities of these mental attributes are carefully pointed out.

Under METAPHYSICS PROPER the Professor treats of the Native or Constitutional Principles which are in the Mind prior to experience. He points out their true Psychological Nature, and shows that they are the fundamental laws or rules of the Faculties. He also specifies the tests, such as Self-evidence, Necessity, and Universality, by which they may be distinguished. He proves that they are in the constitution of the mind, and that they operate spontaneously, but that we can make a reflective or philosophic use of them only after we have detected their nature by a careful induction. He classifies them as the True and the Morally Good. Under the first he treats (1) of Primitive Cognitions

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and Beliefs, such as Body, Spirit, Substance, Power, Space, Time, the Infinite; and (2) Primitive Judgment, such as Substance and Quality, Mathematical Axioms, Cause and Effect. Under the Good, without entering into the subject of Ethics, he shows that there is a fundamental distinction between Moral Good and Evil. He closes this course by showing how all these principles should conduct us to the belief in a Being who is at one and the same time the True and the Good.

HONOR LOGIC.

The Professor has also an Honor Class, in which are discussed the higher questions of Logic (Formal and Inductive) and Philosophy. It meets three times a-week, and is attended by about a dozen advanced Students. At two of the hours the Professor lectures on Logic and the History of Philosophy, and at the third hour there are examinations on text-books and discussions.

GEOLOGY AND MINERALOGY—*Professor, Wyville Thomson*, LL.D.

The Courses consist of lectures, demonstrations, and examinations. The Geological Course embraces the general principles of the science, and a detailed investigation of the palæontological, lithological, and economic characters of all the formations. The Students are exercised in the practical use of the necessary instruments, and in the construction of Geological maps and working sections. The characteristic fossils of the different formations are rendered familiar by the exhibition of specimens and models, and an excellent series of drawings. Drawings are also used for the illustration of the underground workings of mines of copper, coal, &c.

In the Mineralogical Course the Students are instructed in the most modern crystallography by models, and exercised with the reflecting goniometer. The electro-chemical classification of minerals is then explained, and an extensive suite of minerals in the museum is arranged on that system, for the instruction of the Students.

Once a week examinations are held, and additional explanations given of the subjects of the preceding lectures.

CIVIL ENGINEERING—*Professor, James Thomson*, A.M., C.E.

The Courses of lectures and of practical instruction given by the Professor of Civil Engineering were rearranged at the commencement of last Session, 1860-61, to accord with the new Ordinance of the Queen's University, bearing date the 28th of November, 1859, which prescribes to candidates for the Diploma in Civil Engineering a Curriculum extending usually over three Sessions; but admitting of abbreviation to two Sessions in the ease of students whose previous acquaintance with a sufficient group of the subjects prescribed for study in the first and second sessions of the ordinary Course shall be deemed by the College Council satisfactory.

For the First Year Students the Professor gives a Course of instruction in the Principles of Geometrical Drawing, and in Office Work consisting chiefly of practice in engineering and architectural drawing. The business of this course is conducted in a great degree by giving out practical work to the Students, which they perform in the presence of the Professor, the requisite information and explanations being given by him, partly before, and partly during the execution of the work. By lectures, accompanied with oral examinations, are taught the elements of the science of descriptive geometry, the principles of perspective, and other branches of geometrical drawing; and the students are exercised in working examples in practice. The Class meets for two hours at a time on two days per week during the three Terms of the College Session.

For the Second Year Students two Courses are conducted by the Professor of Engineering, of which one is mainly a Lecture Course, and the other a Practice Course. The Lecture Course comprises mainly the following subjects, or most of them:—Principles and practice of surveying, levelling, and plotting, with the theory and use of the instruments required in surveying and levelling

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operations; descriptive geometry; perspective; isometrical projection; properties and qualities of materials used in construction; blasting and quarrying; preparation of specifications and estimates; water works for supplying towns; foundations, cofferdams, bridges, roads, and railways; tunnelling; and an introduction to architecture as a fine art.

In the Practice Course of the Second Year the students are engaged in the performance of office work and field work under the instruction and direction of the Professor; and the business includes surveying, levelling, drawing, mapping, and the computation of areas of lands, and other engineering calculations. Excursions are also made occasionally during the Session to visit engineering works.

For the Third Year Students there will be, like as there are for those of the Second Year, two Courses conducted by the Professor, one a Lecture Course, and the other a Practice Course. The business will comprise the further prosecution of several of the subjects entered on in the Second Year. In the Lecture Course it will include a more advanced treatment of the strength of materials and structures; also the science of the flow of water in orifices, pipes, and canals; drainage of fens by gravitation and by steam power, and other mechanical means; the iron manufacture; processes and mechanisms used in foundries and engineering workshops; ventilation of buildings and mines; farther lectures on railway engineering; and the detailed discussion of various selected undertakings and structures in civil and mechanical engineering.

The Practice Course of the Third Year will include office work, field work, and engineering excursions.

AGRICULTURE—*Professor, John Frederick Hodges,* M.D., F.C.S.

Theory of Agriculture.

The objects of this Course are to teach the principles of Agricultural Science. It includes an account of the origin and composition of soils, the structure and food of plants, and the composition and preparation of manures.

Practice of Agriculture.

The objects of this Course are to teach the young agriculturist how practice may be conducted in accordance with the principles of science, and the results of experience, and to describe the methods by which the largest amount of food may be profitably obtained from the soils of this country. It includes an account of the processes employed in the preparation of the soil for crops, draining, irrigation, &c., the history of the plants of the farm, and the economy of farm produce.

History and Diseases of Farm Animals.

In this Course the history, structure, and treatment of the animals of the farm, in health and disease, are described, and the relative value and economical preparation of the various substances used in feeding explained.

All the Lectures in these Courses require an extensive series of illustrations, and efforts have been made to obtain suitable collections of apparatus, models, &c.; a valuable collection of drawings has been provided for the demonstration of the structure and forms of animals, and numerous specimens of seeds, &c., have been presented to the College. As the history of the treatment and technical management of the flax plant, which affords the raw material of the staple manufacture of Ireland, is regarded as an important department of the duties of an Agricultural Professor in Ulster, the chief seat of flax industry, a complete series of flax implements and specimens has been placed in the museum.

The Students are examined frequently during the Session, and required to write abstracts of the lectures. By these means their attention is secured, and their progress ascertained. Excursions are also made to implement and manure manufactories, and they attend the monthly meetings of the Chemico-Agricultural Society of Ulster, which are held in Belfast.

The influence which the young men thus trained must, in future years, exercise on the agriculture of Ireland may be expected to produce the most beneficial results.

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Digest of Subjects and Courses.

Anatomy and Physiology—*Professor, Peter Redfern,* M.D., Lond., F.R.C.S.I.

The Department of Anatomy and Physiology comprises two distinct Courses of Lectures—one on Anatomy and Physiology, the other on Descriptive and Surgical Anatomy, and also the teaching of Anatomy by Dissections throughout the day.

The Course of Anatomy and Physiology includes about 115 meetings, each of an hour's duration, held on the first five days of each week from November to April inclusive. These meetings are for lecture and occasional examinations on the subjects previously considered in the lectures. The lectures include a complete course of the Anatomy and Physiology of the general textures of the body, including the blood, chyle, &c., and a systematic account of the whole of the viscera, treated of as they are associated in groups for the several purposes of digestion, circulation, respiration, urination, innervation, and generation; also the organs of sense. In treating of every part or organ its healthy state is shown by recent dissections and by preparations from the Museum illustrating it in man and animals, its diseased states and actions being referred to at the same time and contrasted with the healthy ones. The textures not visible to the naked eye are shown under a series of achromatic microscopes, so that during the Course every student in the class has an opportunity of judging for himself of the true characters of each part, and, by becoming familiarized with these, of recognising each when changed by disease.

The Course of Practical Anatomy and Anatomical Demonstrations includes:—

1st. Dissections carried on throughout the day under the immediate superintendence of the Professor of Anatomy and Physiology, and the Demonstrator. Each Student is required to be steadily engaged in dissections during the whole Session. For this purpose the supply of subjects is regular and abundant, and thus affords the surest foundation for efficient medical teaching.

2nd. This Course includes the Anatomical Demonstrations, which consist of a complete Course of Descriptive and Surgical Anatomy, commencing with the anatomy of the skeleton and bones, and including the anatomy of the limbs and other parts, excluding that of the viscera and the physiology treated of in the Course of Anatomy and Physiology. The demonstrations are given on each of the first five days of the week, and are about 115 in number in each Session.

By the erection of part of the Anatomical buildings in the College grounds the Students have been relieved from the inconvenience of walking to and fro. for the distance of a mile, between the Practical Rooms and the College, as formerly.

It is earnestly to be hoped that the remainder of these buildings will now be undertaken, that the Anatomical and Physiological collection in the College Museum may be made available for teaching in the new buildings, and that the injury resulting from carrying the preparations for Lecture down the stairs and across the seats of the present Class-room may be obviated.

Practice of Medicine—*Professor, John Creery Ferguson,* M.A., M.B., *Hon. Fellow of King and Queen's College of Physicians, &c.*

The class meets four times each week, from the first week of November to the last of the following April.

An examination is held usually once a fortnight. The Course embraces the principles of Inflammation, Fevers, the diseases, organic and functional, of the viscera of the three great cavities of the human body. In treating of individual diseases, their pathology, semeiology, ætiology, and treatment, are the subjects chiefly dwelt on. Wherever it is possible, pathology is illustrated by the preparations afforded by our Museum, by drawings and plates, or by recent specimens. It may be added that the Professor's present connexion with the Belfast General Hospital adds greatly to the means of making his Course more useful and interesting to students.

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Digest of Subjects and Courses.

THEORY AND PRACTICE OF SURGERY—*Professor, Alexander Gordon,* M.D.

Four Lectures are delivered weekly during the Medical Session. An examination is held each day on the subject of the preceding day's Lecture. Each Course comprises the following subjects:—

Inflammation,
Suppuration,
Mortification,
Erysipelas,
Burns,
Ulcers,
Wounds,
Hæmorrhage,
Diseases of the Arteries,
,, Veins,
Fractures of Trunk and Extremities,
,, Cranium, Injuries of the Brain and Scalp.
Dislocations,
Diseases of the Joints,
Diseases of the Bursae,
,, Bone, benign and malignant,
,, the Jaws and Mouth,
,, the Fingers and Toes,
,, Female Breast,
,, Anus and Rectum,
,, Testis,
,, Hernia,
,, Prostate,
,, Bladder,
,, Eyes,
,, Larynx,
Syphilis,
Gonorrhœa,
Stricture.

All the capital and minor operations are performed on the dead subject. The Professor delivers a separate Course of twenty-five Lectures on Operative Surgery.

MATERIA MEDICA—*Professor, James Seaton Reid,* M.D.

This Course includes—

1st. General Pharmacology, or the modes in which medicines act upon the living organism in a state of health.

2nd. Therapeutics, or the modes in which medicines act as curative agents.

3rd. Pharmacy.

4th. Dietetics, a review of the different kinds of food used in health and in disease.

5th. Special Pharmacology, or the history, composition, uses, and modes of administering medicinal agents for the cure of disease.

The Class meets four times each week. An examination is held once every week.

MIDWIFERY—*Professor, William Burden,* M.D.

Lectures four times a week during the six winter months consist of following subjects:—

Anatomy of the pelvis, so much as is required for midwifery. Its measurement and pelvimeters.

Contents of the pelvis. The functions of the uterus in its virgin state.

Conception—length of gestation—changes of the uterus and its appendages during gestation.

Growth of child from its earliest seen form until its full parasitic size.

Graafian vesicle and corpus luteum. Fœtus, its circulation, signs of maturity, weight, and length.

Plural births.

Proportion of births and deaths of males to females.

Superfœtation.

Signs of pregnancy.

Signs of approaching labour.

Natural labour, its progress; also the positions and progress of child till its separation from its mother.

Management of natural labour, including the arrangement of the bed and bed-room, and the proper dress and posture of the patient.

Tedious labour, its causes and treatment.

Labour requiring the use of instruments; their application taught on models in the class.

Cæsarean section and Sequltean operation—how to prevent the fœtus from getting large in uterus.

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Premature labour—how to bring it on, and when it is necessary to do so.
Cross-births and their treatment.
Abortion—how to prevent it.
Extra uterine fœtations—how they occur, and their treatment.
Management of women after delivery, and treatment of such accidents and diseases as occur at this period.

Management of children after birth, washing, dressing, food, &c., and the choice of a wet-nurse, and treatment of such accidents as take place at this period, or soon after.

Practical midwifery taught by pupils attending patients in their own houses and in the Lying-in hospital, where Clinical Lectures are given.

MEDICAL JURISPRUDENCE—*Professor, Dr. Hodges.*

The Lectures in this Course are delivered twice weekly during six months. They include an account of the history and chemical investigation of poisons, and of the various subjects respecting which the evidence and assistance of Medical Practitioners may be required in Courts of Law. Experimental illustrations of the methods to be pursued in medico-legal inquiries are given, and frequent examinations held to test the progress of Students. No salary has been allocated to the Teacher of this department, and the duties, at the request of the Council, have, since the opening of the College, been performed by Dr. Hodges.

ENGLISH LAW—*Professor, Echlin Molyneux,* Q.C.

The Professor of English Law, in conducting his department, has constantly kept in view the object of the Select Committee of the House of Commons in recommending the foundation of Chairs in Law in connexion with the Queen's Colleges, which, as they stated in their Report on Legal Education, was not merely to prepare Candidates for the Bar, and for the profession of Attorney and Solicitor, but to raise the standard of legal attainments amongst local practitioners, and especially to provide opportunities of legal education to qualify persons intended to fill administrative situations not strictly legal—a policy which has been since followed up by the Legislature conferring privileges, by way of inducement, on Candidates for the profession of Attorney and Solicitor, who shall avail themselves of these Schools of Law.

The Course of the *First* year in this department comprehends the elements of real and personal property, with the principles of conveyancing; that of the *Second* consists of an introduction to the principles and practice of Courts of Equity and the law of Bankruptcy; the *Third* Course includes the common law as incident to contracts, the nature and form of remedies by civil action, and an outline of criminal law, theoretical and administrative, which last completes the Curriculum of instruction required for the attainment of the Diploma of Elementary Law in the Queen's University. The subjects prescribed for Students of the *Fourth* year to qualify them for the Degree of LL.B. embrace a more extended and detailed course of the subjects already enumerated, including the law of wills, powers, evidence, and procedure.

The Lectures are made auxiliary to the cotemporaneous studies directed, and are accompanied by interrogation, independent of the General Examination and that for Honors. Such books, cases, and decisions, and portions of treatises are pointed out for reading as are considered by the Professor most useful in elucidating a branch of learning which is scarcely furnished with books exclusively intended for instruction; and no efforts have been spared to point out the peculiarities of the law in Ireland, whether proceeding from statutes or inherent diversity of practice, or to direct attention to the recent changes which have been introduced into the course of procedure.

From the first opening of the College to the present time the successive classes have spontaneously applied themselves with assiduity and perseverance to the various subjects of legal instruction, and several Non-Matriculated Students

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Digest of Subjects and Courses.

have from time to time availed themselves of the privilege afforded by the College Ordinances of attending detached Courses of the Lectures on selected subjects.

Under these circumstances, the Professor is gratified at being able to give the assurance that the Faculty of Law has fully realized the objects of its founders, and that a further extension of its public benefits would ensue upon the adoption by Government of the suggestion made by the same Committee of the House of Commons that a preference should be given to candidates for situations in the Civil Service, not of a purely legal nature, who could produce testimonials of legal attainments from those institutions—a rule which would fully accord with the principle laid down in a recent report of another Committee in relation to the Civil Service.

JURISPRUDENCE AND POLITICAL ECONOMY—*Professor, T. E. Cliffe Leslie*, LL.B.

The subjects embraced in the Course of Lectures on *Jurisprudence* are, according to the regulations of this College, (1) the Elements of Jurisprudence, (2) Civil Law, (3) Constitutional Law, (4) Colonial and International Law.

In the treatment of these subjects both the *Historical* and *Philosophical* Methods are followed in the Lectures of the Professor. The Historical Method, for example, is applied in tracing the principal changes through which the laws of England have passed, the assignable causes of such changes, and the degree and manner in which, in comparison with the laws of Continental Europe, the laws of this kingdom have been affected by contact with the principles of Roman legislation. The method of Philosophical Analysis, on the other hand, is applied in investigating the doctrines of the foundation and classification of rights, the several parts and legitimate form of a complete code, the relation of Scientific Jurisprudence to other departments of Social Philosophy, and the means of improving the state of Positive Law as deducible from such considerations.

The subjects which a Course of Lectures on *Political Economy* must embrace are fewer and more definite than those classed under the less advanced and more complicated Science of Jurisprudence. It is the Professor's endeavour to illustrate the principles of Economic Science by the help of those practical applications which will be most interesting and useful in a large commercial town.

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General Class Examination.

GENERAL CLASS EXAMINATION at the end of the SESSION 1861–62.

FIRST YEAR STUDENTS.

GREEK—*Examiner, Professor MacDouall.*

I.—Translate accurately and perspicuously this extract from the *Cyropaedeia*:—

"Καὶ μὲν δή, ὦ πάτερ!" ἔφη ὁ Κῦρος, "ὡς ἂν ἵλεῳ[1] οἱ θεοὶ ὄντες ἡμῖν συμβουλεύειν θέλωσιν, ὅσον δύναμαι κατὰ τὸν σὸν λόγον διατελῶ ἐπιμελούμενος. μέμνημαι γάρ," ἔφη, "ἀκούσας ποτέ σου ὅτι εἰκότως ἂν καὶ παρὰ θεῶν πρακτικώτερος εἴη, ὥςπερ καὶ παρὰ ἀνθρώπων, ὅςτις μὴ ὁπότε ἐν ἀπόροις εἴη, τότε κολακεύοι, ἀλλ' ὅτε τὰ ἄριστα πράττοι τότε μάλιστα τῶν θεῶν[2] μεμνῷτο·[1] καὶ τῶν φίλων[2] δ' ἔφησθα[1] χρῆναι[1] ὡσαύτως οὕτως ἐπιμελεῖσθαι. οὐκοῦν νῦν," ἔφη, "ὦ παῖ! διά γε ἐκείνας τὰς ἐπιμελείας ἥδιον[1] μὲν ἔρχει πρὸς τοὺς θεοὺς δεησόμενος, ἐλπίζεις δὲ μᾶλλον τεύξεσθαι[1] ἃν[2] ἂν δέῃ, ὅτι συνειδέναι[1] σαυτῷ δοκεῖς οὐπώποτ' ἀμελήσας αὐτῶν[2];" "πάνυ μὲν οὖν," ἔφη, "ὦ πάτερ! ὡς πρὸς φίλους μοι ὄντας τοὺς θεοὺς οὕτω διάκειμαι." "τί γάρ;"—ἔφη ὁ πατήρ,—"μέμνησαι ἐκεῖνα ἅ ποτε ἐδόκει ἡμῖν, ὡς, ἅπερ δεδώκασιν οἱ θεοὶ μαθόντας[1] ἀνθρώπους βέλτιον πράττειν ἢ ἀνεπιστήμονας

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αὐτῶν^{2} ὄντας καὶ ἐργαζομένους μᾶλλον ἀνύτειν^{1} ἢ ἀργοῦντας^{1} καὶ ἐπιμελουμένους ἀσφαλέστερον διάγειν ἢ ἀφυλακτοῦντας^{1} τούτων^{2}, παρέχοντας οὖν τοιούτους ἑαυτοὺς οἵους δεῖ, οὕτως ἡμῖν ἐδόκει δεῖν καὶ αἰτεῖσθαι τἀγαθὰ^{1} παρὰ τῶν θεῶν;" "ναὶ μὰ Δία," ἔφη ὁ Κῦρος, "μέμνημαι μέντοι τοιαῦτα ἀκούσας σου· καὶ γὰρ ἀνάγκη ἦν πείθεσθαι τῷ λόγῳ· καὶ γὰρ οἶδά σε λέγοντα ἀεὶ ὡς οὐδὲ θέμις εἴη αἰτεῖσθαι παρὰ τῶν θεῶν οὔτε ἱππεύειν μὴ μαθόντας ἱππομαχοῦντας νικᾶν, οὔτε μὴ ἐπισταμένους τοξεύειν τοξεύοντας κρατεῖν τῶν ἐπισταμένων,^{2} οὔτε μὴ ἐπισταμένους κυβερνᾶν σώζειν εὔχεσθαι ναῦς κυβερνῶντας, οὐδὲ μὴ σπείροντάς γε σῖτον εὔχεσθαι καλὸν αὐτοῖς φύεσθαι,^{1} οὐδὲ μὴ φυλαττομένους γε ἐν πολέμῳ σωτηρίαν αἰτεῖσθαι· παρὰ γὰρ τοὺς τῶν θεῶν θεσμοὺς πάντα τὰ τοιαῦτα εἶναι· τοὺς δὲ ἀθέμιστα εὐχομένους ὁμοίως ἔφησθα εἰκὸς^{1} εἶναι παρὰ θεῶν ἀτυχεῖν^{1} ὥσπερ καὶ παρὰ ἀνθρώπων ἀπρακτεῖν τοὺς παράνομα δεομένους.

1. Parse the words thus numbered, giving such tense forms of the verbs as are actually in use, and, in regard to derivatives and compounds, noticing the laws obeyed in their formation.
2. Explain the government of every genitive case thus numbered.
3. Point out the construction and the idiomatic usage of every participle in the extract, and in each case express the sense in some other way, as by a finite verb after a relative or conjunction, or by a complementary infinitive: you may discuss specially those in the 7th, 8th, and 9th lines, and also those in lines 12th, 13th, 14th, noticing the combination with μή—not οὐ nor οὔτε.
4. Show what verb, actually expressed or to be supplied, is introduced by every relative (whether adjective or particle) throughout the passage.
5. Explain clearly the construction of every verb in the subjunctive mode, whether in passing or in past time, and whether associated with ἄν or otherwise.

I.—Translate accurately and perspicuously the opening lines of the *Alcestis*:—

Ὦ δώματ'^{1} Ἀδμήτει', ἐν οἷς ἔτλην^{3} ἐγὼ
θῆσσαν τράπεζαν αἰνέσαι, θεός περ ὤν!
Ζεὺς γὰρ κατακτὰς^{3} παῖδα τὸν ἐμὸν αἴτιος
Ἀσκληπιόν, στέρνοισιν ἐμβαλὼν φλόγα·
οὗ δὴ χολωθεὶς^{3} τέκτονας^{1} δίου^{1} πυρὸς
κτείνω^{3} Κύκλωπας· καί με^{2} θητεύειν πατὴρ
θνητῷ παρ' ἀνδρὶ τῶνδ' ἄποιν'^{1} ἠνάγκασεν.
ἐλθὼν δὲ γαῖαν τήνδ' ἐβουφόρβουν^{3} ξένῳ,
καὶ τόνδ' ἔσωζον οἶκον ἐς τόδ'^{2} ἡμέρας.
ὁσίου γὰρ ἀνδρὸς ὅσιος^{1} ὢν ἐτύγχανον,
παιδὸς Φέρητος, ὃν θανεῖν^{3} ἐρρυσάμην^{3}
Μοίρας δολώσας· ἤνεσαν^{3} δέ μοι θεαὶ
Ἄδμητον Ἅιδην^{1} τὸν παραυτίκ' ἐκφυγεῖν,
ἄλλον διαλλάξαντα τοῖς κάτω νεκρόν.
πάντας δ' ἐλέγξας^{3} καὶ διεξελθὼν φίλους,
πατέρα γεραιάν θ' ἥ^{2} σφ'^{2} ἔτικτε^{3} μητέρα,
οὐχ εὗρε πλὴν γυναικὸς ἥτις ἤθελε^{3}
θανεῖν πρὸ κείνου^{2} μηδ' ἔτ' εἰσορᾶν φάος·^{1}

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ἡ νῦν κατ᾽ οἴκους ἐν χεροῖν βαστάζεται
ψυχορραγοῦσα[3] τῇδε γὰρ σφ᾽ ἐν ἡμέρᾳ
θανεῖν πέπρωται[3] καὶ μεταστῆναι[3] βίου.
ἐγὼ δέ, μὴ μίασμά[1] μ᾽ ἐν δόμοις κίχῃ,[3]
λείπω[3] μελάθρων τῶνδε φιλτάτην[1] στέγην.[1]
ἤδη δὲ τόνδε Θάνατον εἰσορῶ πέλας,
ἱερῆ[1] θανόντων, ὅς νιν[2] εἰς Ἅιδου δόμους
μέλλει κατάξειν· συμμέτρως δ᾽ ἀφίκετο[3]
φρουρῶν τόδ᾽ ἦμαρ,[1] ᾧ θανεῖν αὐτὴν χρεών.[1]

1. Parse the nouns thus numbered, giving the *etyma* of derivatives, noting peculiarities of formation, and substituting prosaic synonymes for such as are exclusively poetic.

2. Parse the pronouns thus numbered, distinguishing enclitic from accented forms, and substituting prosaic synonymes for those peculiar to the poetic style.

3. Parse fully the verbs thus numbered, noting peculiarities of flexion, formation, or composition,—distinguishing poetic from prosaic forms,—and accounting for the use of the aorist state in ἔτλην, ᾔνεσαν, of the past imperfect in ἤθελε, ἔτικτε, and of the present imperfect in κτείνω, πέπρωται, κίχῃ, λείπω.

4. Point out any constructions that are elliptical or otherwise noticeable, and for some phrases suggest variations equally correct and idiomatic.

LATIN—*Examiner, Rev. Dr. Reichel.*

A.—I. De Tadiana re, mecum Tadius locutus est te ita scripsisse, nihil esse iam quod laboraretne, quoniam haereditas usa capta esset. Id mirabamur te ignorare, de tutela legitima, in qua dicitur esse puella, nihil usu capi posse.—CICERO—AD ATTICUM.

Translate and explain.

II.—Tuus autem illo amicus—scin quem dicam?—de quo tu ad me scripsisti, postea quam non auderet reprehendere, laudare coepisse, nos, ut ostendit, admodum diligit, amplectitur, amat, aperte laudat: occulte, sed ita ut perspicuum sit, invidet. Nihil come, nihil simplex, nihil ἐν τοῖς πολιτικοῖς honestum, nihil forte, nihil illustre, nihil liberum. Sed haec ad te scribam alias subtilius, nam neque adhuc mihi satis nota sunt et huic terrae filio nescio cui committere epistolam tantis de rebus non audeo. Provinciam praetores nondum sortiti sunt. Res eodem est loci, quo reliquisti. Τοποθεσίαν, quam postulas, Miseni et Puteolorum includam orationi meae. A. d. III. Non. Dec.: mendose fuisse animadverteram. —CICERO—AD ATTICUM.

Translate and explain.

α. Explain the phrase *reliquum dodrantem emere.* What is the derivation of *dodrans?*

β. Give the Latin names for the parts of the *as.*

γ. How are derivative verbs formed? Give examples.

B.—I. HA. Me nunc commoror, has foris, quum non ferio,
Ut sciam sitne nunc Ballio domi,
Heus ubi estis vos?
Heus ubi estis? BA. Hic quidem ad me recta habet rectam viam.
Bene ego ab hoc praedatus ibo: novi, bona *scaevast* mihi.

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HA. Ecquis hoc aperit? BA. Heus, *chlamudate*, quid istic debibetur tibi?
HA. Aedium dominum lenonem Ballionem quaerito.
BA. Quisquis es, adulescens, *operam face compendi* quaerere.
HA. Quid iam? BA. Quia *ted* ipsus coram praesens praesentem videt.
HA. Tune is es? St. Chlamudate cave sis tibi a *curvo infortunio.*
Atque in hunc intende digitum: hic lenost. BA. At hic est vir probus.
Set tu, bone vir, flagitare saepe clamore in foro,
Quum *libella* nusquamst, nisi quid leno hic subvenit tibi.
HA. Quin tu mecum fabulare? BA. Fabulor, quid vis tibi?
HA. Argentum accipias. BA. Jam dudum, si des, porrexi manum.
PLAUTUS.

Translate, and explain the words and phrases printed in italics.

II.—A. Satis tu quidem in consolatione es lamentatus, quam quum lego, nihil malo quam has res relinquere, his vero modo auditis multo magis. M. Veniet tempus et quidem celeriter, sive retractabis sive properabis, volat enim aetas. Tantum autem abest ab eo, ut malum mors sit, quod tibi dudum videbatur, ut verear ne homini nihil sit non malum aliud, certe sit nihil bonum aliud potius, si quidem vel di ipsi vel cum dis futuri sumus. A. Quid refert? M. Adsunt enim qui haec non probent. Ego autem nunquam ita te in hoc sermone dimittam, ulla uti ratione mors tibi videri malum possit. A. Qui potest, quum ista cognoverim? M. Qui possit rogas? Catervae veniunt contra dicentium nec solum Epicureorum, quos equidem non despicio, sed nescio quomodo doctissimus quisque, acerrume autem deliciae meae Dicaearchus contra hanc immortalitatem disseruit.—CICERO—TUSCULAN QUESTIONS.

Translate.

C.—Translate the following into Latin prose:—

Mercury, desirous to know in what estimation he was held by mankind, went in a human form into the workshop of a statuary, as if intending to purchase something. Seeing the statue of Jupiter, he asked at what price it might be bought. The man answering for a drachm, he smiled, and asked, At what might this one of Juno be purchased? The statuary answered, For more money. Seeing his own statue, and thinking, as he was the messenger of the Gods, and his name invoked by all mortals desirous of gain, it would be highly valued, he inquired the price. If you will, said the statuary, buy the other two, I will give you this one to boot.

This fable shows that the opinion which we entertain of our own importance often differs from the estimate which others form of it.

A.—Translate into English the following extracts:—

I. Praetoria inde comitia habita. P. Manlius Vulso et L. Manlius Acidinus et C. Laetorius et L. Cincius Alimentus creati sunt. forte ita incidit, ut comitiis perfectis nuntiaretur, T. Otacilium, quem T. Manlio, nisi interpellatus ordo comitiorum esset, collegam absentem daturus fuisse videbatur populus, mortuum in Sicilia esse. ludi Apollinares et priore anno fuerant, et eo anno ut fierent referente Calpurnio praetore, senatus decrevit ut in perpetuum voverentur. eodem anno prodigia aliquot visa nuntiataque sunt. in aede concordiae victoria, quae in culmine erat, fulmine icta decussaque ad victorias, quae in antefixis erant, haesit neque inde procidit. et Anagnia et Fregellis nuntiatum est murum portasque de coelo tactas, et in foro Subertano sanguinis rivos per totum diem

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fluxisse, et Reate mulam peperisse. ea prodigia hostiis maioribus sunt procurata, et obsecratio in unum diem indicta et novemdiale sacrum. Sacerdotes publici aliquot eo anno demortui sunt, novique suffecti: in locum M.' Aemilii Numidae decemviri sacrorum M. Aemilius Lepidus, in locum M.' Pomponii Mathonis pontificis C. Livius, in locum Sp. Carvilii Maximi auguris M. Servilius. T. Otacilius Crassus pontifex quia exacto anno mortuus est, ideo nominatio in ejus locum non est fructa. C. Claudius flamen Dialis, quod exta perperam dederat, flaminio abit.

II. Si. Quid aïs? quum intellexeras
Id consilium capere, quor non dixti extemplo Pamphilo?
Da. Quis igitur eum ab illa abstraxit nisi ego? nam omnes nos
    quidem.
Scimus hanc quam misere amarit. nunc sibi uxorem expetit.
Postremo id mihi da negoti: tu tamen idem has nuptias
Perge facere ita ut facis: et id spero adiuturos deos.
Si. Immo abi intro: ibi me opperire et quod parato opus est para.
Non impulit me, haec nunc omnino ut crederem.
Atqui haud scio an quae dixit sint vera omnia,
Sed parvi pendo: illud mihi multo maxumumst,
Quod mihi pollicitust ipsus gnatus. Nunc Chremem
Conveniam: orabo gnato uxorem: id si impetro,
Quid alias malim quam hodie has fieri nuptias?
Nam gnatus quod pollicitust, haud dubiumst mihi,
Si nolit, quin eum merito possim cogere.
Atque adeo in ipso tempore eccum ipsum obviam.

B.—1. Distinguish between *pōpulus* and *pŏpulus*. What deponent verb is formed from the latter, and what is its meaning?

2. Distinguish between *populus* and *plebs*. What is supposed to be the derivation of the latter?

3. When did the Apollinarian games take place?

4. Give the times of celebration of the Magalesia, Floralia, and ludi maximi, together with any other particulars you may recollect about the date of their introduction, the mode of their celebration, or the deities in whose honour they were held.

5. Give the (empiric) rule for the cases in which to put the place *at* which anything is. Explain the anomalies of this rule.

6. Distinguish between *sacerdos*, *flamen*, and *pontifex:* give their derivations: and state how many flamines and pontifices there were at Rome at the beginning of the commonwealth and afterwards.

7. Explain the meaning of the proposition *sub* in the composition of the word *suffectus*.

8. Explain the phrase *extra perperam dare*, and give the Greek word cognate to *perperam*.

9. Derive the words *prodigium*, *monstrum*, *portentum*, *culmen*, *nuntius*.

10. Mention the chief battles of the Second Punic War, and the date of its commencement and termination.

C.—1. What kind of a line is the first in the second extract; and what rule usually obtaining of such lines is violated in this instance?

2. In what metres is this passage written? State what lines are written in each, and give the laws of these metres.

3. What other metres are of most frequent occurrence in Terence?

4. Show how the iambic may be derived from the trochaic; and what phenomenon is explained by this derivation?

5. Describe the feet called cretic, bacchius, and choriamb, and explain their origin.

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6. What is the difference between a foot and a metre? and state what kinds of verse are usually scanned by metres and not feet.

7. What is the ithyphallic metre? Give an example of it.

8. Write out the following at full length in Latin, and translate it into English:

Graeca . Menandru . acta . ludis . megalensibus . Marco . Fulvio . M.' Glabrione . aed . cur . egere . L. Ambivius . Turpio . L. Atilius . Praen . modos . fecit . Flaccus . Claudi . Tibiis . paris . tota . facta . prima . M. Marcello . C. Sulpicio . coss.

9. Give the names of Terence's plays, and state which was the last written.

10. Give the dates (in years of the city) of Terence and Plautus.

11. When was the first regular play presented at Rome, and who was its author?

English Language—*Examiner, Professor Craik.*

1. Explain the view of the progress and revolutions of the English language which regards it as having assumed only three essentially distinct successive forms.

2. Explain the view of the history of the language which regards its successive stages as marked by the changes in the vowel-endings of the noun and verb.

3. Explain the common view of the history of the language which divides it into a certain number of periods of what are called *Saxon* and *English*, of various kinds or denominations.

4. Explain the view of the history of the English language which looks at it in its changing relation to, or connexion with, the rival foreign tongue brought in by the Norman Conquest.

5. Compare the successive stages in the history of the language with those in the growth of the human being.

6. Explain the terms *Francic* (or *Frankish*), *French*, *Langue d'Oc*, *Langue d'Oyl*, *Provençal*, *Neo-Latin*, *Romance*.

7. Explain what we mean by the Latin of the First and the Latin of the Second Period in our existing English, and describe the general character of the latter.

8. Explain whence and how we have obtained the bulk of the Latin that is found in the vocabulary of our modern English.

9. Explain the rule or principle according to which their established names are given to the several vowels in our present English.

10. State and illustrate the rule for the correct use of the comma in connexion with the relative and its antecedent.

Modern Languages.—*Examiner, Dr. Frädersdorff.*

Translate into English:—

La grotte de la déesse était sur le penchant d'une colline. De là on découvrait la mer, quelquefois claire et unie comme une glace, quelquefois follement irritée contre les rochers, où elle se brisait en gémissant et élevant ses vagues comme des montagnes. D'un autre côté, on voyait une rivière où se formaient des îles bordées de tilleuls fleuris et de hauts peupliers qui portaient leurs têtes superbes jusque dans les nues. Les divers canaux qui formaient ces îles semblaient se jouer dans la campagne; les uns roulaient leurs eaux claires avec rapidité; d'autres avaient une eau paisible et dormante; d'autres, par de longs détours, revenaient sur leurs pas, comme pour remonter vers leur source, et semblaient ne pouvoir quitter ces bords enchantés. On apercevait de loin des collines et des montagnes qui se perdaient dans les nues, et dont la figure bizarre formait un horizon à souhait pour le plaisir des yeux. Les montagnes voisines étaient couvertes de pampre vert qui pendait en festons : le raisin, plus éclatant que la pourpre, ne pouvait se cacher sous les feuilles, et la vigne était accablée sous son fruit. Le figuier, l'olivier, le grenadier, et tous les autres arbres, couvraient la campagne et en faisaient un grand jardin.

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General Class Examination.

MAGNANIMITY OF LOUIS XIV.

While the English were erecting the Eddystone Lighthouse, which stands on a rock in the Channel, a French privateer took the workmen and carried them to France, where they were put into prison. Some time after, Louis XIV. heard of the transaction, and immediately ordered the Englishmen to be set at liberty and the captors to be put in their places, saying, "If I am at war with England I am not at war with mankind; the lighthouse which the English are erecting will be a benefit to all nations whose ships navigate the Channel, and I would rather protect the workmen than annoy them." He ordered presents to be given them, and recommended them to continue their operations without fear. The lighthouse was completed, and has saved hundreds of vessels from wreck.

GRAMMATICAL QUESTIONS.

1. State the gender of the following nouns :—*ville, village, pouvoir, puissance, part, parti, salle, salon.*

2. Enumerate the different kinds of articles, with examples of each class.

3. What are the comparative and superlative degrees of *bon, petit, mauvais, grand?*

4. Give the different forms of the demonstrative adjective *ce* and demonstrative pronoun *celui.*

5. Distinguish between irregular and defective verbs. Give examples.

6. In how many moods is the conjugation of French verbs divided? Give examples of each mood, taken out of the four conjugations.

7. Conjugate the unipersonal verb *falloir.*

8. Mention the exceptions to the general rule on the position of the personal pronoun. Illustrate by examples.

MATHEMATICS.—*Examiner, Professor Slesser.*

ALGEBRA.

1. Show that $a \times a^6 = a^{11}$. What is the meaning of a^m when m is (1) a fraction $\frac{s}{q}$, (2) a negative quantity $-n$? and state the principle which makes it necessary to attach to them these meanings.

2. Show that if $b > c$ and $a > (b-c)$ then $a-(b-c)=a-b+c$.

$$\text{Simplify } a-2\left[b+3\left\{b-2\left(a-c-\frac{a-b}{2}\right)\right\}\right]$$

3. By what expression must $ab+bc+c^2$ be multiplied so as to produce $a^2b-ab^2+2abc+ae^2-b^2c+c^3$?

Show that $(x+y+z)^3-(y+z-x)^3-(x+z-y)^3-(x+y-z)^3=24\,xyz$, and $3\,(x+y+z)^2-(y+z-x)^2-(x+z-y)^2-(x+y-z)^2=8(xy+xz+yz)$.

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General Class Examination.

4. Reduce the following fractions:

$$\frac{x^2+4a+3ax^2}{x^2+7ax+12a^2},\quad \frac{y-z}{(y-a)(z-a)}+\frac{z-x}{(z-a)(x-a)}+\frac{x-y}{(x-a)(y-a)}.$$

5. Solve the following equations:

$$\cdot 2x+5=\cdot 5x+\tfrac{1}{4}(x+1);\quad \frac{6+x}{6-x}-\frac{4+x}{4-x}+\frac{2+x}{2-x}=1;\quad \frac{x}{2}+\frac{3}{x}=\frac{x}{3}+\frac{4}{x}+\frac{5}{6}.$$

$$\left\{\begin{array}{l} x^2-5xy=24 \\ y^2+3x^2+2xy=8 \end{array}\right\} \qquad (2+x)^{\frac{1}{3}}+(2-x)^{\frac{1}{3}}=3(4-x^2)^{\frac{2}{3}}.$$

6. Extract the square root of 114144 in the scale whose radix is 6. If the digits of a number in the scale whose radix is r be a, o, c, reckoning from the left, and in the scale whose radix is r', be c, o, a, show that the number is

$$c\,\frac{r^2r'^2-1}{r^2-1}.$$

7. Find the number of permutations taken altogether of n letters, of which p are a's, q are b's, and the rest all different. Find also the number of permutations of the same letters when taken $\overline{n-1}$ together.

8. Show that if $f(m)\,f(n)=f(m+n)$ then will $f(m)=c^m$ where c is some constant independent of m. Expand by the binomial theorem $\left(\frac{a}{2}-2x\right)^8$, $\left(1-4x\right)^{-\frac{1}{4}}$, and find the coefficient of x^r in the expansion of

$$\frac{(x^2-\sqrt{2x}+1)^{\frac{1}{2}}}{(x^2+\sqrt{2x}+1)^{\frac{3}{2}}}$$

9. If $\frac{p_n}{q_n}$ be the nth convergent to the continued fraction

$$a_1+\frac{1}{a_2+}\,\frac{1}{a_3+}\,\frac{1}{a_4+}\,\ldots\ldots \text{ then } p_n=a_np_{n-1}+p_{n-2}.$$

Prove the corresponding relation when the fraction is of the form

$$a_1-\frac{1}{a_2-}\,\frac{1}{a_3-1}\,\frac{1}{a_4-1}\,\ldots\ldots\ldots$$

Express $\sqrt{20}$ as a continued fraction.

10. Find numbers which when divided by 4, 5, 6 shall leave remainders 2, 1, 4.

11. Find the value of an annuity of £A, to begin at the end of p years and continue q years. Interest being such that £R is the amount of £1 for a year. A man is to pay a debt of £p by instalments in the following way: he is to pay in the second year twice what he pays in the first, in the third year 3 times as much, in the fourth 4 times, and so on. If it require n years to liquidate the debt, what must each payment be? Interest as before.

12. From a bag containing 6 white and 4 black balls, two balls are drawn and put into an empty bag. A says that both balls are white. What is now the chance that if a ball be drawn from the bag containing the two it shall be white, supposing that A speaks truth 4 times out of 5.

GEOMETRY AND TRIGONOMETRY.

1. Show that parallelograms upon the same base and between the same parallels are equal to one another. If $ABCD$ be a parallelogram, and E, the middle point of CD, be joined to A, and any point F be taken in AE, then will the triangle ABF be double of the triangle ADF.

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General Class Examination.

2. Show that equal chords in a circle are equally distant from the centre. Place a chord in a circle such that the length of the chord may be equal to its distance from the centre.

3. Inscribe a circle in a given triangle.

4. The sides about the equal angles of equiangular triangles are proportionals. ABC is any triangle, from A a line AF is drawn meeting BC produced in F, and making the angle CAF equal to the angle B. Show that

$$AB^2 : AC^2 :: BF : CF.$$

5. If two chords in an ellipse intersect, the rectangles of their segments are proportional to the squares on the diameters parallel to them. Dd, Ee are two conjugate diameters of an ellipse, P a point on it, PM, PN parallel to Ee, Dd and meeting Dd, Ee respectively in M, N. Perpendiculars Mm, Nn are drawn on the tangent at P, show that

$$DM.\,Md : PN^2 :: Mm : Nn.$$

6. What are the two units used for the measurement of angles? Compare the abstract numbers which represent the same angle in the respective measurements. Find the circular measure of angles 12°, 28° 30′, 690°.

7. Define the sine, tangent, and cosine of an angle, and show that $\sin A = \dfrac{\tan A}{\sqrt{1+\tan^2 A}}$ and $\cos^2 A(1+\tan^2 A)=1$.

8. Find a formula including all the angles, which have the same sine as a given angle α.

Given $\sin 5\theta = \cos 6\theta$ find the values of θ; if $\tan\theta$ were to be determined from the above equation, how many different values would it generally have?

9. Prove the formula for $\cos(A+B)$, also

$$2 \cot 2\alpha = \cot\alpha + \tan\alpha$$
$$\operatorname{cosec} 2\alpha = \cot 2\alpha + \tan\alpha$$
$$2 \operatorname{cosec} 2\alpha + 8 \cos 2\alpha \cos 4\alpha \operatorname{cosec} 8\alpha$$

If $\tan^{-1}\dfrac{x}{a} = 2 \sin^{-1}\dfrac{y}{a}$ then will $a^4 x^2 = 4y^2 (a^2-y^2)(a^2+x^2)$.

10. In a plane triangle, the sum of the two sides is to their difference as the tangent of half the sum of the angles at the base is to the tangent of half their difference. In any triangle $a\cot A + b\cot B - c\cot C = 4(r_3 - R)$ where r_3 is radius of described circle touching c externally and R the radius of the circumscribed circle.

11. Prove Demoivre's theorem. Apply it to find the values of $(1+\sqrt{-3})^{\frac{1}{3}}$.

What must be the relation between a and b that $(a+b\sqrt{-1})^n$ may be wholly real?

12. The angular points of a regular polygon inscribed in a circle are joined to a point in the plane of the circle at a distance d from the centre, find the sum of the squares of the joining lines.

SECOND YEAR STUDENTS.

GREEK.—*Examiner, Professor Mac Douall.*

I.—1. Translate perspicuously, and in good English style, the annexed extract from the second Book of HERODOTUS :—

Εἰ δὲ δεῖ μεμψάμενον γνώμας τὰς προκειμένας αὐτὸν περὶ τῶν ἀφανέων γνώμην ἀποδέξασθαι, φράσω, &c., down to *ἔλπομαι ποιέειν ἂν τὸν Ἴστρον τάπερ νῦν ἐργάζεται τὸν* Νεῖλον.

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General Class Examination.

2. Elucidate the whole of preceding discussion in connexion with the meteorological and cosmical conceptions of the Author.

3. Express the sense of the whole passage in Attic Greek and the style of Xenophon, retaining the phraseology (adapted in dialect) when appropriate, but transposing and abridging freely. Accentuate your version throughout.

II.—Translate accurately and perspicuously these lines from the *Philoctetes* of Sophocles :—

ΦΙΛΟΚΤΗΤΗΣ.

πρός νύν σε πατρὸς πρός τε μητρός, ὦ τέκνον !
πρός τ' εἴ τί σοι κατ' οἶκόν ἐστι προςφιλές,
ἱκέτης ἱκνοῦμαι, μὴ λίπῃς μ' οὕτω μόνον,
ἔρημον ἐν κακοῖσι τοῖςδ', οἵοις ὁρᾷς
ὅσοισί τ' ἐξήκουσας ἐνναίοντά με·
ἀλλ' ἐν παρέργῳ θοῦ με. δυσχέρεια μέν,
ἔξοιδα, πολλὴ τοῦδε τοῦ φορήματος·
ὅμως δὲ τλῆθι. τοῖσι γενναίοισί τοι
τό τ' αἰσχρὸν ἐχθρὸν καὶ τὸ χρηστὸν εὐκλεές.
σοὶ δ' ἐκλιπόντι ταῦτ' ὄνειδος οὐ καλον,
δράσαντι δ', ὦ παῖ ! πλεῖστον εὐκλείας γέρας,
ἐὰν μόλω 'γὼ ζῶν πρός Οἰταίαν χθόνα.
ἴθ'· ἡμέρας τοι μόχθος οὐχ ὅλης μιᾶς.
τόλμησον, ἐμβαλοῦ μ' ὅποι θέλεις ἄγων,
εἰς ἀντλίαν, ἐς πρῷραν, ἐς πρύμνην, ὅπῃ
ἥκιστα μέλλω τοὺς ξυνόντας ἀλγυνεῖν.
νεῦσον, πρὸς αὐτοῦ Ζηνὸς ἱκεσίου, τέκνον !
πείσθητι· προςπίτνω σε γόνασι, καίπερ ὢν
ἀκράτωρ ὁ τλήμων, χωλός. ἀλλὰ μή μ' ἀφῇς
ἔρημον οὕτω χωρὶς ἀνθρώπων στίβου.
ἀλλ' ἢ πρὸς οἶκον τὸν ἐμὸν ἔκσωσόν μ' ἄγων
ἢ πρὸς τὰ Χαλκωδόντι Εὐβοίας σταθμά,—
ἐντεῦθεν οὔ μοι μακρὸς εἰς Οἴτην στόλος
Τραχινίαν τε δεράδα καὶ τὸν εὔροον
Σπερχειὸν ἔσται,—πατρί μ' ὡς δείξῃς φίλῳ,
ὃν δὴ παλαιὸν ἐξ ὅτου δέδοικ' ἐγὼ
μή μοι βεβήκῃ. πολλὰ γάρ νιν ἐν λιταῖς
ἔστειλ' ἱκεσίοις, ὡς ἐμ' ἐκσῶσαι θέλοι.
ἀλλ' ἢ τέθνηκεν αὐτός, ἢ διακόνων
ἕκαστος, οἶμαι, τοὐμὸν ἐν σμικρῷ μέρει
ποιούμενος, τὸν οἴκαδ' ἤπειγεν στόλον.

1. Explain the geographical and biographical references in this passage.
2. Point out and very briefly elucidate such peculiarities of idiom, construction, and metre as you may find most noticeable.
3. You may also discuss the varieties of reading—especially those introduced here into the last eleven lines.

LATIN.—*Examiner, Rev. Dr. Reichel.*

TACITUS, GERMANIA.

1. Tegumen omnibus sagum fibula aut, si desit, spina consertum: caetera intecti totos dies iuxta focum atque ignem agunt. Locupletissimi veste distinguuntur, non fluitante, sicut Sarmatae ac Parthae, sed stricta et singulos artus exprimente. Gerunt et ferarum pelles, proximi ripae negligenter, ulteriores exquisitius, ut quibus nullus per commercia cultus. Eligunt feras, et detracta velamina spargunt maculis pellibusque beluarum quas exterior Oceanus atque ignotum mare gignit. Nec alius feminis quam viris habitus, nisi quod feminae saepius lineis amictibus velantur, eosque purpura variant, partemque vestitus superioris in manicas non extendunt, nudae brachia ac lacertos: sed et proxima pars pectoris patet, quanquam severa illic matrimonia, nec ullam morum partem magis laudaveris, nam prope soli barbarorum singulis uxoribus contenti sunt, exceptis admodum paucis, qui non libidine sed ob nobilitatem plurimis nuptiis ambiuntur.

TACITUS, HISTORIAE.

2. Parvo interim initio, unde nihil timebatur orta seditio prope urbi excidio fuit. Septumam decumam cohortem e colonia Ostiensi in urbem acciri Otho iusserat: armandae eius cura Vario Crispino tribuno e praetorianis data. is quo magis vacuus quietis castris iussa exsequeretur, vehicula cohortis incipiente nocte onerari, aperto armamentario, iubet. Tempus in suspicionem, causa in crimen, affectatio quietis in tumultum evaluit: et visa inter temulentos arma cupidinem sui movere. Fremit miles, et tribunos centurionesque proditionis arguit, tanquam familiae centurionum ad perniciem Othonis armarentur, pars ignari et vino graves, pessimus quisque in occasionem praedarum, vulgus, ut mos est cuiuscunque novi motus cupidum. Et obsequia meliorum nox abstulerat. Resistentem seditioni tribunum et severissimos centurionum obtruncant. Rapta arma, nudati gladii. Insidentes equis urbem ac Palatium petunt. Erat Othoni celebre convivium primoribus feminis virisque: qui trepidi, fortuitusne militum furor an dolus imperatoris, manere ac deprehendi an fugere et dispergi periculosius foret, modo constantiam simulare, modo formidine detegi, simul Othonis vultum intueri. Utque evenit inclinatis ad suspicionem mentibus, quum timeret Otho timebatur.

CICERO, DE NATURA DEORUM.

3. Empedocles autem multa alia peccans in deorum opinione turpissime labitur. Quattuor enim naturas, ex quibus omnia constare censet, divinas esse vult, quas et nasci et extingui perspicuum est, et sensu omni carere. Nec vero Protagoras, qui sese negat omnino de dis habere quod liqueat, sint non sint qualesve sint, quidquam videtur de natura deorum suspicari. Quid? Democritus, qui tum imagines earumque circuitus in deorum numero refert, tum illam naturam, quae imagines fundat ac mittat, tum scientiam intelligentiamque nostram, nonne in maximo errore versatur? Quum idem omnino, quod nihil semper statu suo maneat, neget esse quidquam sempiternum, nonne deum omnino ita tollit, ut nullam opinionem eius reliquam faciat? Quid? aër, quo Diogenes Apolloniates utitur deo, quem sensum habere potest aut quam formam dei?

4. Sed sint ista pulchriora duntaxat aspectu, quod mihi tamen ipsum non videtur: quid enim pulchrius ea figura quae sola omnes alias figuras complexa continet quaeque nihil asperitatis, habere, nihil offensionis potest, nihil incisum angulis, nihil anfractibus, nihil eminens, nihil lacunosum? Quumque duae formae praestantissimae sint, ex solidis globus—sic enim *σφαῖραν* interpretari placet—ex planis autem circus aut orbis, qui *κυκλος* Graece dicitur, his duabus formis contingit solis ut omnes

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earum partes sint inter se simillimae a medioque tantum absit extremum [quantum idem a summo], quo nihil fieri potest aptius. Sed si haec non videtis, quia nunquam eruditum illum pulverem attigistis, ne hoc quidem physici intelligere potuistis, hunc aequabilitatem motus constantiamque ordinum in alia figura non potuisse servari?

Quaestiones, quibus Latino est respondendum:

1. Quomodo, secundum Epicurum, notitia deorum ad mentis pervenit humanas?
2. Quaenam est Epicuri πρόληψις?
3. Quomodo Epicurus conatur probare deos mundum nec creasse nec regere?
4. A quibusnam philosophis mutuatus est praecipue Epicurus suam disciplinam?
5. Quamnam philosophias partem in maximo honore habuit Epicurus, spreta omnino alia?
6. Facile refelluntur Epicuri tum (α) physica, tum (β) moralia?

A.—Translate the following into Latin prose:

I had rather believe all the fables in the Talmud and the Alcoran, than that this universal frame is without a mind. And therefore God never wrought miracle to convince atheism, because his ordinary works convince it. It is true, that a little philosophy inclineth man's mind to atheism; but depth in philosophy bringeth men's minds about to religion: for while the mind of man looketh upon second causes scattered, it may sometimes rest in them, and go no further; but when it beholdeth the chain of them confederate and linked together, it must needs fly to Providence and Deity. Nay, even that school which is most accused of atheism, doth most demonstrate religion: that is, the school of Leucippus, and Democritus, and Epicurus. For it is a thousand times more credible, that four mutable elements, and one immutable fifth essence* duly and eternally placed, need no God; than that an army of infinite small portions, or seeds unplaced, should have produced this order and beauty without a divine marshall.† The Scriptures saith, "The fool hath said in his heart, There is no God:" it is not said, "The fool hath thought in his heart." So as he rather saith it by rote to himself, as that which he would have, than that he can thoroughly believe it, or be persuaded of it. For none deny there is a God, but those for whom it maketh that there were no God. It appeareth in nothing more that atheism is rather in the lip than in the heart of man, than by this: that atheists will ever be talking of that their opinion, as if they fainted in it within themselves, and would be glad to be strengthened by the consent of others; nay, more, you shall have atheists strive to get disciples, as it fareth with other sects; whereas, if they did truly think that there were no such thing as God, why should they trouble themselves?—BACON.

MODERN LANGUAGES.—*Examiner, Dr. Frädersdorff.*

Translate into English:

Massillon, évêque de Clermont, né en Provence en 1663, mort à Clermont en 1742, partage avec Bourdaloue le premier rang parmi les prédicateurs français. Chez d'autres écrivains la langue française est plus ner-

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* Aliquid.

† Designator.

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veuse et plus originale ; chez aucun autre, excepté chez Racine, elle n'est aussi élégante et aussi suave. L'art d'intéresser à une idée par les détails, de la multiplier en quelque sorte par l'expression, d'être diffus même sans langueur, caractérise Massillon, qui, d'ailleurs, est moins plein et moins fort que Bourdalone, moins sublime et moins rapide que Bossuet. Plus habile à persuader qu'à convaincre, il a connu le moyen d'agir sur le plus grand nombre d'âmes. Il approche de l'onction de Fénelon dont il n'a pas l'intimité. Le Petit—Carême de Massillon, suite de sermons composés pour l'éducation de Louis XV. est regardé comme une des plus parfaites productions de la langue française.

TOUT CHANGE DANS L'UNIVERS, EXCEPTÉ DIEU.

Tout passe avec vous et comme vous ; une rapidité que rien n'arrête, entraîne tout dans les abîmes de l'éternité ; nos ancêtres nous en frayèrent hier le chemin, et nous allons le frayer demain à ceux qui viendront après nous. Les âges se renouvellent ; la figure du monde passe sans cesse ; les morts et les vivants se remplacent et se succèdent continuellement ; rien ne demeure ; tout change, tout s'use, tout s'éteint ; Dieu seul demeure toujours le même ; le torrent des siècles qui entraîne tous les hommes, coule devant ses yeux ; et il voit avec indignation, de faibles mortels emportés par ce cours rapide, l'insulter en passant, vouloir faire de ce seul instant tout leur bonheur et tomber au sortir de là, entre les mains de sa colère et de sa vengeance.—MASSILLON.

GRAMMATICAL QUESTIONS.

1. Mention the different cases when the article is not used. Give examples.
2. Give the feminine of the following adjectives :—*doux, exprès, favori, sec, malin, paysan, roux, tiers, vieux.*
3. Enumerate the different kinds of pronouns, with examples of each class.
4. Give the imperfect, perfect, and future of the following verbs :—*songer, réussir, offrir, concevoir, entendre,* and *prendre.*
5. With what auxiliary are reflective verbs conjugated, and when is the participle of these verbs variable?
6. Conjugate the unipersonal verb *y avoir.*
7. Give as many adverbs of quantity as you can remember.
8. Explain the following constructions :—

Je lui ai payé cette somme avant de partir.
Je lui ai payé cette somme avant qu'il partît.
J'ai vu le roi allant à la chasse.
J'ai vu le roi en allant à la chasse.

Translate into English :

Die benachbarten britannischen und dänischen Küsten waren die erſten, die von ihren Schiffen besucht wurden. Die englische Wolle, die diese zurückbrachten, beschäftigte tausend fleißige Hände in Brügge, Gent und Antwerpen, und schon in der Mitte des zwölften Jahrhunderts wurden flandische Tücher in Frankreich und Deutschland getragen. Schon im eilften Jahrhundret finden wir frieſsche Schiffe im Belt und sogar in der levantischen See. Dieses muthige Volk unterstand sich sogar, ohne Compaß unter dem Nordpol hindurch bis zu der nördlichen Spitze Rußlands, zu steuern. Von den wendischen Städten empfingen die Neiderlande einen Theil des levantischen Handels, der damals noch aus dem schwarzen Meere durch das rußische Reich nach der Ostsee

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ging. Als dieser im dreizehnten Jahrhundert zu sinken anfing, als die Kreuzzüge den indischen Waaren einen neuen Weg durch die mittelländische See eröffneten, die italienischen Städte diesen fruchtbaren Handelszweig an sich rißen, und in Deutschland die grosse Hansa zusammentrat, wurden die Niederlande der wichtige Stapelort zwischen Norden und Süden. Noch war der Gebrauch des Compaßes nicht allgemein, und man segelte noch langsam und umständlich längs den Küsten.

Translate into German :

For this reason, these familiar histories may perhaps be made of greater use than the solemnities of professed morality, and convey the knowledge of vice and virtue with more efficacy than axioms and definitions. But if the power of example is so great as to take possession of the memory by a kind of violence, and produce effects almost without the intervention of the will, care ought to be taken that, when the choice is unrestrained, the best examples only should be exhibited, and that which is likely to operate so strongly, should not be mischievous or uncertain in its effects.

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1. Write out the second and third person singular of the present tense of the verbs fechten, fallen, laßen.

2. Give the third person singular of the imperfect subjunctive of the verbs spinnen, fließen, fliehen.

3. In what tenses is the preposition in separable verbs placed last, and state the circumstances under which it assumes its original position? Give some examples.

4. Give some verbs that govern the dative in German.

5. Write out in German some phrases in which the verb occurs with the accusative of the person and genitive of the thing.

6. Translate :

a. Er soll hier bleiben
Er soll* todt sein.
b. Er will den König sehen
Er will* den König gesehen haben.
c. Du dürftest* dich wohl geirrt haben.

LOGIC.—*Examiner, Rev. Dr. M'Cosh.*

1. Specify the several notions or terms in the following, and say as to each what sort of notion or term it is—"Abelard was the most famous of the schoolmen. The versatility of his genius was immense. Young men waited eagerly on his teaching. Theology and logic were the topics discussed by him."

2. Examine the following statement of Berkeley :—It is impossible for me to form the abstract idea of motion distinct from the body moving, and which is neither swift nor slow, curvilinear nor rectilinear ; and the like may be said of all abstract general ideas whatsoever :" and also the following statement of Leibnitz—"Concreta vere res sunt, abstracta non sunt res sed rerum modi ; modi autem nihil aliud sunt quam relationes rei ad intellectum."

3. What sort of notions can be logically defined ? What does definition bring out in these notions ? What difficulty is there in defining general concrete notions ? How is this got over ? Examine the following definitions, and say whether they are in accordance with the rules of de-

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* The verbs marked thus involve an idiomatical locution.

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finition, and when you condemn, say by what rule—"Words are the signs of thoughts." "A deer is an animal with horns." "Life is the sum of the vital functions."

4. Given the proposition—"In our joyous moments quick moves the step of time," what are the terms? what the subject and predicate? Interpret the proposition both as to the extension and comprehension of the notions. Whether is the extension or comprehension the more prominent in thought in the above sentence? What other forms could you derive from the proposition, say by opposition, conversion, or any other logical process?

5. State briefly, but precisely, how and how far logic can practically give aid in thinking, in respect of our notions and judgments.

6. (*a*) When the middle term is singular, what figure is employed? Why? What arguments fall naturally into that figure? What is the special rule as to the conclusion in that figure? and what the reason of it? Or,

(*b*) Lias is above Red Sandstone; Red Sandstone lies above Coal; therefore, Lias lies above Coal.

7. It can be shown that if the earth were hollow, or if it were liquid, the oscillations produced would derange the tides and prevent them from following their present regular flow; and hence it is concluded that the earth must be solid. Put the reasoning in this in the form of a disjunctive, and show how the disjunctive could be reduced to a hypothetical and categorical.

8. "Bad men and even devils have faith, but what is possessed by such can be of no value—and so faith can be of no value." Put the above in correct form. Say under what head of fallacies it falls? Define that fallacy.

9. Individuals have periods of infancy, youth, manhood, and decrepitude. Nations have also their periods of infancy, youth, and manhood, and we may suppose, also, of decay; so at least had ancient Egypt, Chaldea, Rome, and many other countries. We may conclude that Great Britain must also have its time of old age and decay.

10. In what relation do generalization and classification stand towards each other? What is the difference between a natural and artificial classification? Wherein is the former superior to the latter.

11. What is meant by a "perfect induction?" Give an example. What rule regulates the inference in such induction? Is it of any use in physical investigation? What is meant by "an induction by simple enumeration without a known exception?" Can this be had in nature? Estimate its value.

12. What is the difference between reason and cause? What science lays down rules as to the reason, and what follows from it? What is the difference between sign and cause? In what sciences do we seek after causes? Can logic aid us in such an investigation?

13. The common statement is, that mountains draw the clouds, especially when near the sea, and that tracts of country lying near mountains are exposed to much rain in consequence. The correct account is said to be, that when a current of air, loaded with moisture, passes over a mountain, the moisture is condensed by the cold of the ground, and falls in rain. According to what method or methods is this inference drawn. State precisely what must be given or granted in order to entitle us to draw the inference. State the reasoning in syllogistic form.

14. Define evidence. Does historical evidence depend on intuition or experience. In what circumstances may we reckon an event of ancient history as so completely established that the evidence will not diminish as ages advance? Whence the uncertainty of hearsay and traditional evidence?

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15. What are the ultimate tests which logic supplies for trying reasoning? for determining what is intuitive truth? and for ascertaining when we have reached a law of nature?

Those who cannot answer *twelve* of these questions must answer the whole of the following, along with at least *six* of the above:—

(*a*) What is the difference between an abstract and a general notion? Give examples of each.

(*b*) What are the rules of logical division?

(*c*) Examine the following—"Every rational agent is accountable; brutes are not rational agents; therefore they are not accountable."

(*d*) What constitutes the Second Figure? Why must the conclusion in that Figure be negative? Put the following in correct form and examine it—"This man must be a good man, for he is charitable."

(*e*) Define *petitio principii* and *ignoratio elenchi*.

(*f*) In what respects does experiential evidence differ from demonstrative evidence? Why is experiential evidence called "moral?"

Natural Philosophy.—*Examiner, Dr. Stevelly.*

1. State and prove the conditions which three forces which act at the same point of a body must fulfil in order that they may be in equilibrio, and explain the distinction between force actually, or virtually, acting at a given point.

2. When a horse draws a boat along a canal, explain what prevents the boat from running in on the bank on which the horse walks; and point out how much of the force, he exerts at every instant, is effective to move the boat along the course it actually goes; also, explain why the horse has to exert his force continually in order to keep up the motion of the boat, and show the consistency of the facts with the first law of motion.

3. When forces are in equilibrio the equilibrium may be any one of three kinds: state the distinction between these, and give an example of each.

4. When a heavy body is placed upon a supporting base, explain the condition which determines whether it will continue to stand or fall. If it stand, state what force measures its stability, and state the quantities on which the magnitude of that force depends. If it fall, state what determines the direction in which it will fall.

5. A man's weight is 168 lbs., he can press down the handle of the pump of a Bramah's press so as to lay that weight on the handle at four feet two inches from the centre on which it works; the handle bears on the plunger of the pump at three inches from the same centre; what pressure does he exert on the plunger when he lays his whole weight on the handle?

6. Explain what is meant by the justness of a balance, and what by its sensibility; and state the adjustments of a modern balance which are necessary and sufficient to secure these perfections.

7. Describe the method of weighing by counterpoise, and state with what description of instrument that method may be employed with advantage.

8. Describe Hunter's, or the differential, screw, and explain the practical difficulties of increasing the power of the simple screw, which are avoided by its use.

9. Enumerate the five magnitudes whose relations to each other are investigated by dynamical inquiries, and state how Atwood's machine enables us to examine experimentally the relations of these in the case of bodies moving under the influence of uniformly accelerating forces.

10. Explain how the magnitude of a velocity which is continually

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changing, is estimated at any one instant, and how the intensity of a force which is continually changing that intensity is determined at any given instant.

11. Describe the construction of the "Gridiron Pendulum," and explain the principle on which it is made to compensate for those changes of temperature to which it may be exposed.

12. Describe and explain any of the experimental proofs that the hydrostatic pressure of heavy fluids is entirely independent of the shape of the containing vessel, and state clearly the quantities on which, alone, that pressure depends.

13. Describe and explain any of the experimental proofs that the buoyant force exerted by a heavy fluid upon a body totally or partially surrounded by it, is equal to the weight of the volume of fluid whose place it occupies.

14. Enumerate as many of the methods of taking the specific gravity of liquids as you remember, and describe the actual process in whichever of them you consider the simplest and best.

15. Enunciate the law which governs the ordinary refraction of light, and explain the experimental proof of its truth.

16. Explain how Astronomers prove that the Sun in the course of a year appears to describe a great circle among the fixed stars; and show on what circumstance, connected with the position of that circle, the variety of seasons through the year depends astronomically, and explain why the cycle of the seasons is completed, before his apparent course among the fixed stars.

17. State the law which determines whether two poles of magnetic bars, when presented to each other, will mutually attract or repel.

18. Explain how an electrified body, when brought near another body, may be caused to electrify it permanently by induction; and state under what circumstances the electrification will not be permanent when the inducing electrified body is removed.

MATHEMATICS.—*Examiner*, *Professor Slesser.*

DIFFERENTIAL CALCULUS, &c.

1. Show that $\text{lt}_{x=\infty}\left(1+\frac{1}{x}\right)^{x} \div \left(1-\frac{1}{x}\right)^{-x}=1.$

Given $\text{lt}_{x=\infty}\left(1+\frac{1}{x}\right)^{x}=\epsilon$ find $\text{lt}_{x=0}\left(1-x^2\right)^{\frac{a}{x^2}}$

2. The differential coefficients of u, v, two functions of x, are α, β; find the differential coefficients of $\frac{u}{v}$, $u^m v^n$, $\frac{\log u}{\log v}$, ϵ^{ax}, u^v, $\tan^{-1}(u+v)$.

3. Differentiate $\frac{1}{x^2+a^2}$, $x^n \log x$, $(x^2+\sqrt{1+x^4})^n$, $a^{\sqrt{1-x^2}}\sin^{-1}\sqrt{1-x^2}$, $f\left(\frac{\phi x}{x}\right)$.

4. Transform the equation $x^2\frac{d^2y}{dx^2}+ax\frac{dy}{dx}+by=0$ into an equation between θ and ϕ where $x=\epsilon^{\theta}$, $y=\epsilon^{\phi}$. Also in the same, leaving the dependent variable unchanged, change the independent variable from x to θ.

5. State the rule for the determination of the maxima and minima values of a function of any number of independent variables. Find the maxima or minima values of $x\,y\,z\,(x-a)\,(y-b)\,(z-c)$.

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6. Explain how the position and nature of the cusps in a given curve may be found. Find the position and nature of the cusps in (1) $a(x+y)^2=(x-y)^3$; (2) $y=x+\sqrt{\frac{x^3}{a}}$; (3) $P^n=\lambda Q^{n-1}$ where $P, Q, \lambda,$ are linear expressions in x and y, and n is even.

7. Integrate the expressions $\int\frac{dx}{x^2+a^2}, \int\frac{xdx}{a+bx+cx^2}, \int x\sin xdx$;

$$\int_0^{\frac{\pi}{2}}\frac{\sin x-\cos x)dx}{\{a^2(\cos^4x+\sin^4x)+c^2\sin^2x\cos^2x\}^{\frac{1}{2}}};\quad \int_0^{\frac{\pi}{2}}\frac{\cos^3x\sin^3xdx}{(\cos^4x+\sin^4x)^2}.$$

8. A man commences to run a mile, his speed at first is 440 yards per minute, and it diminishes in such a way that after running x yards, his speed per minute is $440-\frac{x}{8}$ yards. Required how long he will take to run the mile.

9. Show that $\frac{d}{da}\int_a^b\phi(x)dx=\phi(b)\frac{db}{da}-\phi(a)$.

Hence find the value of $\int_0^{\frac{\pi}{2}}\frac{dx}{(a^2+x^2)^2}$.

10. Show how to find the envelope of a system of curves, in whose equation there is one arbitrary parameter.

Find the envelope of the system $a^2P+b^2Q=c^2R$ where a, b are related by the condition $\left(\frac{p}{a}\right)^m+\left(\frac{q}{b}\right)^m=1$, P, Q, R are expressions in x and y and c is constant.

11. If an operation K be equivalent to the three operations $H_1\ H_2\ H_3$ performed in order, H_1 being the first; what operations and in what order would be equivalent to the inverse of the operation K.

Find y from the equation

$$\left(\frac{d}{dx}+x\right)\left(\frac{d}{dx}-a\right)\left(\frac{d}{dx}+\frac{1}{x}\right)y=cx.$$

12. Solve the following differential equations:

$$y^3\frac{dy}{dx}+(y^4-1)\sqrt{x^2-1}=y.$$

$$\frac{d^3y}{dx^3}+3\frac{dy}{dx}+4y=Ax^2+B\cos 3x+Ce^{2x}.\qquad \frac{d^2y}{dx^2}+\frac{c^2y}{x^{\frac{4r}{2r+1}}}=0.$$

ANALYTICAL GEOMETRY.

1. Find the equation of the line passing through a given point and perpendicular to a given line.

Find the equation of $\perp_r$ to $\frac{x}{a}+\frac{y}{b}=1$ which passes through the point a, b. Find the condition that the latter line may pass through the origin.

2. Find the formula for the length of $\perp_r$ from a point x, y, on a line whose equation is given.

Find the condition that the line $(x-a)l+(y-b)m=c^2$, should be at a distance c from the point (a, b).

3. Find the polar equation of the circle, any point being the pole. Show

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that if a point be taken in the plane of a circle, a line can be found such that the square of the distance of any point on the circle from the point, shall vary as its distance from the line.

4. The equation of a parabola is $y^2=4ax$. Find the equation of, (1) Its directrix ; (2) Latus rectum ; (3) Tangent ; (4) Normal at extremity of latus rectum. If the latus rectum SL be produced to L' so that $LL'=SL$ and through L' a parallel to the axis be drawn, then if through any point P in the normal at L a $\perp^r$ to the axes be drawn meeting the curve in Q, and the line through L' in N, then will $SQ=NP$.

5. Show that in an ellipse or hyperbola, the product of the perpendiculars from the foci on any tangent is equal to the square of the semi-minor axis. If a conic touch the three sides of a triangle, and one focus move along a straight line, the other will move along a conic.

6. An ellipse inscribed in the triangle ABC touches its sides in points EFG so that

$$BE : EC :: l : 1,\ CF : FA :: m : 1,\ AG : GB :: n : 1.$$

Show that $lmn=1$ and the equation of the ellipse may be put in the form $\sqrt{a\alpha}+\sqrt{lmb}\beta+\sqrt{m\gamma}=0$.

7. The straight lines $\alpha=0$, $\beta=0$, $\gamma=0$ form two sides and a diagonal joining their extremities of a parallelogram ; find the equations of the other sides and diagonal, the lengths of the sides of the triangle formed by the three given lines being a, b, c.

8. Show that in any transformation in rectangular co-ordinates of the equation $Ax^2+2\,Bxy+Cy^2+2Dx+2Ey+F=0$ into an equation of the form $ax^2+2bxy+cy^2+2dx+2ey+F=0$, then $a+c=A+C=ac-b^2+AC-B^2$.

Find the equation of the ellipse $2x^2+xy+3y^2 4x+by=8$, when referred to its principal diameters as axes.

9. If there be three circles, A, B, C, and if circles be described through the points of intersection of A and B and of A and C, then a circle can be described through the points of intersection of the two circles so drawn, and of the circles B, C.

10. Find the equation of a parabola referred to two tangents as axes. Find the equation of the diameter through the origin, and of a line parallel to its corresponding ordinates.

11. In a hyperbola S being focus, P any point on the curve, and PM drawn parallel to an asymptote to meet the corresponding directrix in M, show that $SP=PM$. Describe a way in which the hyperbola can be traced graphically, depending on this property.

THIRD YEAR STUDENTS.

GREEK.—*Examiner, Professor Mac Douall.*

[HONOR CLASS.]

I.—Translate in a perspicuous style this extract from the *Philebos* of PLATON :

ΣΩ. πότερον οὖν ἐκ τούτου τοῦ σώματος ὅλως τὸ παρ᾽ ἡμῖν σῶμα ἢ ἐκ τοῦ παρ᾽ ἡμῖν τοῦτο τρέφεταί τε καί ὅσα νῦν δὴ περὶ αὐτῶν εἴπομεν εἴληφέ τε καὶ ἴσχει ; ΠΡΩ. καὶ τουθ᾽ ἕτερον, ὦ Σώκρατες ! οὐκ ἄξιον ἐρωτήσεως. ΣΩ. τί δέ ; τόδ᾽ ἆρ᾽ ἄξιον ; ἢ πῶς ἐρεῖς ; ΠΡΩ. λέγε τὸ ποῖον. ΣΩ. τὸ παρ᾽ ἡμῖν σῶμα ἆρ᾽ οὐ ψυχὴν φήσομεν ἔχειν ; ΠΡΩ. δῆλον ὅτι φήσομεν. ΕΩ. πόθεν, ὦ φίλε Πρώταρχε ! λαβόν, εἴπερ μὴ τό γε τοῦ παντὸς σῶμα ἔμψυχον ὂν ἐτύγχανε, ταὐτά γ᾽ ἔχον τούτῳ καὶ ἔτι πάντῃ καλλίονα ; ΠΡΩ. δῆλον ὡς

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οὐδαμόθεν ἄλλοθεν, ὦ Σώκρατες! ΣΩ. οὐ γάρ που δοκεῖ ἡμῖν γε, ὦ Πρώταρχε! τὰ τέτταρα ἐκεῖνα, πέρας καὶ ἄπειρον καὶ κοινὸν καὶ τὸ τῆς αἰτίας γένος ἐν ἅπασι τέταρτον, θεμένοις, τοῦτο μὲν ἐν τοῖς παρ' ἡμῖν ψυχήν ἐμποιοῦν καὶ σωμασκίαν παρέχον καὶ πταίσαντος σώματος ἰατρικὴ ἀκούμενον καὶ ἐν ἄλλοις ἄλλα πᾶσι παντοῖα συντιθέν, "σοφίαν" ἐπικαλεῖσθαι, τῶν δ' αὐτῶν τούτων ὄντων ἐν ὅλῳ τε οὐρανῷ καὶ κατὰ μεγάλα μέρη καὶ προσέτι καλῶν καὶ εἰλικρινῶν, ἐν τούτοις οὐκ ἄρα μεμηχανῆσθαι τὴν τῶν καλλίστων καὶ τιμιωτάτων φύσιν. ΠΡΩ. ἀλλ' οὐδαμῶς τοῦτό γ' ἂν λόγον ἔχοι. ΣΩ. οὐκοῦν, εἰ μὴ τοῦτο, μετ' ἐκείνου τοῦ λόγου ἂν ἑπόμενοι βέλτιον λέγοιμεν, ὡς ἔστιν, ἃ πολλάκις εἰρήκαμεν, ἄπειρόν τ' ἐν τῷ παντὶ πολὺ καὶ πέρας καὶ κοινόν, καί τις ἐπ' αὐτοῖς αἰτία οὐ φαύλη, κοσμοῦσά τε καὶ συντάττουσα ἐνιαυτούς τε καὶ ωρας καὶ μῆνας, "σοφία" καὶ "νοῦς" λεγομένη δικαιότατ' ἄν. ΠΡΩ. δικαιότατα δῆτα. ΣΩ. σοφία μὴν καὶ νοῦς ἄνευ ψυχῆς οὐκ ἄν ποτε γενοίσθην. ΠΡΩ. οὐ γὰρ οὖν. ΣΩ. οὐκοῦν ἐν μὲν τῇ τοῦ Διὸς ἐρεῖς φύσει βασιλικὴν μὲν ψυχήν, βασιλικὸν δὲ νοῦν ἐγγίγνεσθαι διὰ τὴν τῆς αἰτίας δύναμιν, ἐν δὲ ἄλλοις ἄλλα καλά, καθ' ὃ φίλον ἑκάστοις λέγεσθαι. ΠΡΩ. μάλα γε. ΣΩ. τοῦτον δὴ τὸν λόγον ἡμᾶς μή τι μάτην δόξῃς, ὦ Πρώταρχε! εἰρηκέναι, ἀλλ' ἔστι τοῖς μὲν πάλαι ἀποφηναμένοις ὡς ἀεὶ τοῦ πάντος νοῦς ἄρχει ξύμμαχος ἐκείνοις,—ΠΡΩ. ἔστι γὰρ οὖν·—ΣΩ. τῇ δέ γ' ἐμῇ ζητήσει πεπορικὼς ἀπόκρισιν, ὅτι νοῦς ξυγγενὴς ἐστι τοῦ πάντων αἰτίου λεχθέντος. τῶν τεττάρων δ' ἦν ἡμῖν ἓν τοῦτο. ἔχεις γὰρ δήπου νῦν ἡμῶν ἤδη τὴν ἀπόκρισιν. ΠΡΩ. ἔχω καὶ μάλ' ἱκανῶς· καί τοί με ἀποκρινάμενος ἔλαθες. ΣΩ. ἀνάπαυλα γάρ, ὦ Πρώταρχε! τῆς σπουδῆς γίγνεται ἐνίοτε ἡ παιδιά. ΠΡΩ. καλῶς εἶπες. ΣΩ. νῦν δὴ νοῦς, ὦ ἑταῖρε! οὗ μὲν γένους ἐστὶ καὶ τίνα ποτὲ δύναμιν κέκτηται, σχεδὸν ἐπιεικῶς ἡμῖν τὰ νῦν δεδήλωται. ΠΡΩ. πάνυ μὲν οὖν.

II.—1. Elucidate the import both of this passage and of the discussion of which it is a segment, noticing the technical terms and peculiar phrases which occur in it.

2. Sketch the tenor of the Dialogue, tracing the relation of at least one of the subordinate or episodic disquisitions to the main argument. Show also the bearing of the whole or of some portions of the controversies between the Italic, Eleatic, and Hedonic Schools of Philosophy.

3. To what group of Platon's Dialogues would you refer the *Philebus*? And in what period of his life does it appear to have been composed?

LATIN.—*Examiner, Rev. Dr. Reichel.*

[HONOR CLASS.]

Translate the following into Latin Prose :—

The stateliness of houses, the goodliness of trees, when we behold them delighteth the eye ; but that foundation which beareth up the one, that root which ministereth unto the other nourishment and life, is in the bosom of the earth concealed ; and if there be occasion at any time to search into it, such labour is then more necessary than pleasant, both to them which undertake it and to the looker on. In like manner, the use and benefit of good laws, all that live under them may enjoy with delight and comfort, albeit the grounds and first original causes from whence they have sprung be unknown, as to the greatest part of men they are. But when they who withdraw their obedience pretend that the laws which they should obey are corrupt and vicious, for better examination of their quality it

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behoveth the very foundation and root, the highest well-spring and fountain, of them to be discovered; which, because we are not oftentimes accustomed to do, when we do do it, the pains we take are more needful a great deal than acceptable, and the matters which we handle seem, by reason of newness (till the mind grow better acquainted with them), dark, intricate, and unfamiliar. For as much help thereof, as may be in this case, I have endeavoured, throughout the body of this whole discourse, that every former part might give strength unto all that follow, and every latter bring some light unto all before.—Hooker.

Turn the following into Latin Elegiacs :—

Crush the seeds of disease while they are new,
  And let your horse be stopped when he is only beginning to go;
For delay gives strength; delay ripens[1] the grapes,
  And makes what was mere herbage crops of corn.
The tree which now affords a wide shade
  When[2] first planted[3] was a twig:
Then it might have been plucked up by the hand;
  Now immensely[4] increased it stands by its own force.
Oppose[5] beginnings: it is too[6] late to prepare medicine
  When evils have grown[7] strong by delay.

History and English Literature.—*Examiner, Professor Craik.*

HISTORY.

1. Give an account of the connexion of France and the Empire throughout the ninth century.

2. Sketch the succession to the Empire from the end of the ninth century to the beginning of the nineteenth.

3. Enumerate in the order of time, and with the date of each, the successive changes of dominion undergone by Italy from the fall of the Western Roman Empire to the end of the eighth century.

4. Mention the several families who eventually acquired the supreme power in Tuscany, Milan, Mantua, and Modena.

5. Explain the origin and results of the conflicting claims of the Hohenstauffen Emperors, the Kings of Aragon and Spain, and the Counts and Dukes of Anjou to the crown of the Two Sicilies.

6. Explain what are meant by the Exarchate, the Pentapolis, the Romagna, the Marches, and what were, before 1830, called the Four Legations.

7. State the results of the war of the Spanish succession to Spain, Naples, Sicily, Lombardy, and the Belgic Provinces.

8. State the arrangements made at the peace of 1814 with regard to Lombardy, Venice, Genoa, and Belgium.

9. State the results in Italy of the war of the French and Sardinians in 1859 against Austria.

10. Explain the scheme of universal history given in the Lectures; and sketch the leading events of any one of the nine Periods.

11. Explain the computation of Degrees of kindred according to both laws; with the meaning of Consanguinity and Affinity, and of *Agnate* and *Cognate*; and the distinction between Representation and Proximity in questions of inheritance.

12. Explain the Julian and Gregorian Reformations of the Calendar.

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[1] To ripen, *percoquere*. [2] When, *quo tempore*. [3] To be planted, *imponi*. [4] *Aucta in immensum*. [5] Oppose, *obstare*. [6] Too late, *Sero*. [7] To grow strong, *convalesco*.

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—
General Class Examination.

ENGLISH LITERATURE.

1. Give an account of the Vision of Piers Ploughman, noticing the subject of the work, the date, the spirit, the form of composition, the poetical merit, and the modern editions.
2. Give an account of the Canterbury Tales of Chaucer, including the same particulars.
3. Sketch the life of Spenser, mentioning his principal works.
4. Do the same with Milton.
5. Give an account of the principal English historical works of the eighteenth century.
6. Characterize and illustrate the poetical genius of Cowper.
7. Characterize and illustrate the poetry of Wordsworth.
8. Write a short criticism on Shakespeare's Julius Cæsar.
9. Explain what you understand to be the essential distinction between the Poetic and the Prosaic.
10. Write out any one of Milton's Sonnets that you may remember.
11. Give an account of the structure of the Sonnet, and explain its peculiar character as a form of poetical composition.
12. Compare the styles of Johnson and of Burke.

MODERN LANGUAGES.—*Examiner, Dr. Früdersdorff.*

[HONOR CLASS.]

Translate into English: —

Der erſte, welcher die Malerei und Poesie mit einander verglich, war ein Mann von feinem Gefühle, der von beiden Künſten eine ähnliche Wirkung auf sich verspürte. Beide, empfand er, ſtellen uns abwesende Dinge als gegenwärtig, den Schein als Wirklichkeit vor; beide tauschen, und beider Täuschung gefällt.

Ein zweiter suchte in das Innere dieses Gefallens einzudringen, und entdeckte, daß es bei beiden aus einerlei Quelle fließe. Die Schönheit, deren Begriff wir zuerst von körperlichen Gegenſtänden abziehen hat allgemeine Regeln, die sich auf mehrere Dinge anwenden laßen; auf Handlungen, auf Gedanken sowohl als auf Formen. Ein dritter, welcher über den Werth und über die Vertheilung dieser allgemeinen Regeln nachdachte, bemerkte, daß einige mehr in der Malerei, andere mehr in der Poeſie herrschten; daß also bei diesen die Poeſie der Malerei bei jenen die Malerei der Poeſie mit Erläuterungen und Beispielen aushelfen könne. Das erſte war der Liebhaber; das zweite der Philosoph: das dritte der Kunſtrichter.

Translate into English :—

Sire! Jüngſt kam ich an von Flandern und Brabant.—
So viele reiche, blühende Provinzen!
Ein kräftiges, ein großes Volk—und auch
Ein gutes Volk—und Vater dieses Volkes,
Das, dacht ich, das muß göttlich seyn!—Da ſtieß
Ich auf verbrannte menschliche Gebeine—
Sie haben Recht. Sie müßen. Daß Sie können
Was Sie zu müßen eingesehn, hat mich
Mit schauernder Bewunderung durchdrungen.
O Schade, daß, in seinem Blut gewälzt,
Das Opfer wenig dazu taugt, dem Geiſt
Des Opferers ein Loblied anzustimmen!
Daß Menschen nur—nicht Wesen höhrer Art—

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Die Weltgeſchichte ſchreiben!—Lautere
Jahrhunderte verdrängen Philipp's Zeiten;
Die bringen mildre Weisheit; Bürgerglück
Wird dann verſöhnt mit Fürſtengröße wandeln,
Der karge Staat mit ſeinen Kindern geizen
Und die Nothwendigkeit wird menſchlich ſeyn.

Translate into German:—

It is, therefore, not a sufficient vindication of a character that it is drawn as it appears; for many characters ought never to be drawn: nor of a narrative, that the train of events is agreeable to observation and experience; for that observation which is called knowledge of the world will be found much more frequently to make men cunning than good. The purpose of these writings is surely not only to show mankind, but to provide that they may be seen hereafter with less hazard; to teach the means of avoiding the snares which are laid by treachery for innocence, without infusing any wish for that superiority with which the betrayer *flatters* his *vanity;* to give the power of counteracting fraud, without the temptation to practise it; to initiate youth by mock encounters, in the art of necessary defence, and to increase prudence without impairing virtue.

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1. Name some of Lessing's principal works.
2. What is the subject of his *Laokoon*, and what influence did this work exercise in a literary point of view?
3. Name some of the German writers that formed, in connexion with Lessing, the so-called "*Sieben Gestirn.*"
4. State what you may have read or know of the above writers and their respective works.
5. Compose in *German* a brief biographical sketch of Schiller or Göthe.

Translate:

a. Er ſoll ein Haus bauen.
Er ſoll* ein Haus gebaut haben.
b. Sie will nach Italien reiſen.
Sie will* in Italien geweſen ſein.
c. Ihr Freund darf den Brief leſen.
Ihr Freund dürfte* ſich wohl geirrt haben.

DISCOURS DU MARECHAL DE BIRON A HENRI IV.

Quoi! sire, on vous conseille de monter sur mer, comme s'il n'y avait pas d'autre moyen de conserver votre royaume que de le quitter! Si vous n'étiez pas en France, il faudrait percer au travers de tous les hasards et de tous les obstacles pour y venir; et, maintenant que vous y êtes, on voudrait que vous en sortissiez; et vos amis seraient d'avis que vous fissiez de bon gré ce que les plus grands efforts de vos ennemis ne sauraient vous contraindre de faire!

En l'état où vous êtes, sortir seulement de la France pour vingt-quatre heures, c'est s'en bannir pour jamais.

Le péril, au reste, n'est pas si grand qu'on vous le dépeint: ceux qui nous pensent envelopper sont, ou ceux-mêmes que nous avons tenus enfer-

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* The sentences with the verb thus marked involve an *idiomatical* locution.

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més si lâchement à Paris, ou gens qui ne valent pas mieux, et qui auront plus d'affaires entre eux-mêmes que contre nous. Enfin, sire, nous sommes en France ; il faut nous y enterrer : il s'agit d'un royaume, il faut l'emporter, ou y perdre la vie ; et, quand même il n'y aurait point d'autre sûreté pour votre personne sacrée que la fuite, je sais bien que vous aimeriez mieux mille fois mourir de pied ferme, que de vous sauver par ce moyen. Votre majesté ne souffrirait jamais qu'on dise qu'un cadet de la maison de Lorraine lui aurait fait perdre terre, encore moins qu'on la vît mendier à la porte d'un prince étranger.

Non, sire, il n'y a ni couronne ni honneur pour vous au-delà de la mer. Si vous allez au-devant du secours de l'Angleterre, il reculera, si vous vous présentez au port de la Rochelle en homme qui se sauve, vous n'y trouverez que des reproches et du mépris.

Je ne puis croire que vous deviez plutôt fier votre personne à la merci des flots et de l'étranger, qu'à tant de braves gentilshommes et tant de vieux soldats qui sont prêts à lui servir de remparts et de bouclier ; et je suis trop serviteur de votre majesté, pour lui dissimuler que, si elle cherchait sa sûreté ailleurs que dans leur vertu, ils seraient obligés de chercher la leur dans un autre parti que le sien.—*Histoire de France.*

M. VILLEMAIN possessed abundant sources of knowledge for his critiques, and what he drew from them, skilfully combined, formed the great material of his literary eloquence, so admirably ductile and pliable, and on all subjects so appropriate. The first of those sources consisted in a profound knowledge of antiquity and of the classic authors ; . . . . Germany was overlooked. In fact, M. Villemain had imparted so great an impulse by his investigations on England, as to be justly deemed a mighty step for France—a country that had before been so exclusive, and a knowledge of German is only now beginning to be generally appreciated among writers. The fourth and last, but most prolific, source of M. Villemain's criticisms, lay in his immense historical studies ; he has plunged into all the darkness of the middle ages, and approved himself as erudite an historian, as able and sagacious a critic.

GRAMMATICAL QUESTIONS.

1. What prepositions do the following adjectives require before a noun, or before a verb in the Infinitive ?—

content,
enclin,
jaloux,
empressé
reconnaissant,
capable,
utile,
facile,
habile.

2. What are the respective significations of the following homonymes ?

cour,
cours,
foi,
fois,
laid,
lait,
seau,
sceau.

3. Give the first person singular and plural of the present Subjunctive of the following verbs :—

vouloir,
cueillir,
mouvoir,
peindre,
prendre,
résoudre
s'asseoir,

4. Give the general rules for forming the tenses of verbs.

5. Would you use the Subjunctive Mood after *si ?*

6. Make a list of some conjunctions and conjunctive locutions requiring the subjunctive.

7. Translate the following idiomatic phrases :—

a. Je me fais fort de réussir.
b. Cela ne laisse pas de m'inquiéter.
c. Vous porterez la peine de votre paresse.
d. Malheur à lui, s'ils en viennent aux voies de fait.

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8. Give the exact meaning of the following words :—

Désormais—Je ne le croirai plus désormais.
Or—Vous savez le reste ; or, que décidez-vous ?
Donc—Il a menti une fois, donc on ne le croit plus.

METAPHYSICS.—*Examiner, Rev. Dr. M'Cosh.*

1. Did Bacon suppose that his method applied to mental as well as material science ? But under what modifications is his method applicable to psychological investigation ? What must be the instrument employed in such investigation ? From what sources, direct and indirect, may it gather information ?

2. Who showed that we do not intuitively know distance by the sense of sight ? How do we come primarily to know distance ? How do we come to know distance by the sense of sight ?

3. Bring out the distinctions in regard to the objects intuitively perceived by the senses. In particular bring out and examine the distinctions between the primary and secondary qualities of matter.

4. State precisely the nature and the amount of the knowledge obtained by self-consciousness. In doing so, you are invited to offer a historical statement of opinions maintained by eminent men on this subject.

5. Unfold and analyse all that is contained in the recognitive power of the mind. Does the memory deceive ?

6. What are the discursive or logical operations of the mind ? Give a psychological analysis of the mental faculties which may be involved in the simple apprehension of logicians.

7. What place has the mental apprehension or phantasm in emotion ? What sort of ideas raise emotions ? What is meant by the motive principles or native appetences of the mind ? Name some of them. How do they stand in reference to emotions ?

8. What associations of colour are recognised as beautiful ? Mention works of art and of nature in which these associations are found.

9. What is the characteristic of the exercises of the will ? Show how the will may influence the emotions and the decisions of the conscience.

10. Can every thing be proven ? What are we at liberty to assume without proof ? But under what conditions ?

11. What account do you give of the mind's apprehension as to substance ? You are invited to give historical notices of opinions. In what sense is "substance" an abstract and in what sense a general phrase ? What is involved in our idea of substance ?

12. Wherein, precisely, do primitive beliefs differ from primitive cognitions ? What sort of conception and belief have we in regard to the infinite ? In answering this question you may give historical notices of opinions.

13. How does the mind reach the idea of quantity ? Specify some primitive judgments in regard to quantity. Are mathematical axioms the generalizations of an outward experience ? In what sense are they generalizations ?

14. In what relations do moral good and happiness stand to each other according to our intuitive convictions ?

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1. Name the principal philosophical works of Bacon, and specify the date of their publication. What is his precise doctrine as to final cause ?

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General Class Examination.

Examine it, and in doing so say what purpose is served by final cause in certain departments of natural science, and in natural theology.

2. Where was Descartes born and where did he die? What was the method followed by him? Is it the same as that recommended by Bacon? or that followed by Reid? Illustrate his method by the way in which he establishes the existence of body.

3. Where and when was Spinoza born? In what faith was he brought up? Of what religious system did he become the expounder? By what dilemma did he seek to establish his conclusions? Examine it.

4. What is the subject treated of by Locke in Book II. of his Essay? What is his account of the origin and genesis of the idea of time? What was the view of our idea of time given in the class?

5. Where does Locke treat of knowledge and intuition? What is his account of knowledge and intuition? Wherein did it differ from that given in the class?

6. What is Leibnitz' doctrine of optimism? What his theory of the origin of evil? Have you any remarks to offer.

7. Name the principal philosophic works of Reid. He says reason has two degrees: what is the distinction between these two? What is the function of reason in the first degree? How does he divide the judgments pronounced by it?

8. What is the province of the speculative reason according to Kant? What are the three ideas of reason? Have they any objective value? What is the province of the practical reason? What is the categorical imperative? What are the three postulates of, or corollaries from, the practical reason?

9. In what relation did Fichte stand to Kant? How would you meet the idealism of Fichte?

10. What is the relation of cause and effect according to Hume? to Brown? and to Mill? Is there more in the relation than these authors suppose? If so, what is there?

11. Name the writers who have endeavoured to show that man is swayed by no other motive than that of a desire to secure pleasure or to avoid pain. Name the eminent authors who have opposed them. On what grounds have they done so? You are invited to offer comments.

12. What form did utilitarianism take in the system of Hume? in that of Paley? and in that of Bentham? Does utilitarianism contain any principle fitted to show that we ought to promote the greatest happiness of the greatest number?

13. What function does Cousin allot to reason? What are the elements or ideas of reason? Offer comments.

14. What eminent men have constructed an *a priori* argument in behalf of the Divine existence? What intuitive elements are involved in the theistic argument? Do they need an experiential element?

JURISPRUDENCE AND POLITICAL ECONOMY.—*Examiner, Professor Leslie.*

POLITICAL ECONOMY.

1. What causes will regulate the increase or decrease in the next twenty-five years of the rate of wages in Ireland?

2. What causes will regulate the increase or decrease in the next twenty-five years of the amount of rent in North America?

3. What causes will regulate the increase or decrease in the next five years of the rate of interest in Mexico?

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General Class Examination.

4. State the causes on which the price of each of the following commodities at the end of the present century will depend—

(*a.*) Cotton, and cotton manufactures respectively;
(*b.*) Rags, paper, and newspapers respectively;
(*c.*) Gold and silver plate respectively;
(*d.*) Potatoes, bread, and butchers' meat respectively;
(*e.*) Tea and spirits respectively.

5. Prove that a sensible decline in the value of the precious metals tends to raise the nominal or pecuniary rate of interest; and, moreover, that a rise in the rate of interest attributable to this cause is merely a nominal one.

6. Point out the material differences between bills of exchange and bank notes, considered as portions of the circulation of this country.

7. What causes will determine the amount of metallic currency necessary for the domestic trade of Russia in 1872?

8. What is the limit to the premium on foreign bills of exchange?

9. Prove that a rapid increase in the foreign trade of a country tends—

(*a.*) To raise the price of its labour and raw materials;
(*b.*) To lower the price of its manufactures.

10. Explain the effect of the nature of the consumption of a country upon the nature and distribution of its wealth.

11. State the peculiar advantages and disadvantages of direct and indirect taxation respectively.

12. Who are the ultimate sufferers of the losses of English mercantile ships confiscated for breaking the American blockade?

THIRD YEAR ARTS AND FIRST YEAR MEDICINE AND ENGINEERING STUDENTS.

CHEMISTRY.—*Examiner, Dr. Andrews.*

1. What are the different states of matter? Describe them and the conditions under which bodies pass from one state to another.

2. In graduating a mercurial thermometer, what are the chief points requiring attention in order to secure an accurate instrument?

3. Describe the method of correcting a dry gas for temperature and pressure.

4. What are the circumstances which influence the boiling point of a liquid?

5. If water be cooled to 18° F., without freezing, and then be agitated, how much of the water will be suddenly converted into ice?

6. Give some account of "regelation," and of the conditions under which it takes place.

7. Mention the principal gases which have been liquefied, and describe the methods by which their liquefaction has been effected.

8. Describe the method of determining the latent heat of steam, and state how it is affected by the temperature at which the vapour is formed.

9. How is nitrogen gas prepared, and under what conditions will it combine with the following elements, viz.:—hydrogen, oxygen, and carbon?

10. What is the supposed composition of ammonium? State also the reasons for assuming the possible existence of such a compound.

11. Give the composition, by weight and by volume, of the following compounds:—water, ammonia, deutoxide of nitrogen, hydrochloric acid, carbonic oxide, marsh gas, olefiant gas ($H=1$; $O=8$; $N=14$; $Cl.\ 35.5$; $C=6$).

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General Class Examination.

12. Mention some of the natural groups under which certain elements may be classed, and the leading properties of each group.

13. What are the sources and properties of iodine, and how is it prepared?

14. Give an account of the chemical changes which take place in the respiration of animals and of plants.

15. Describe the solar spectrum, and contrast it with the spectra of the following metals:—sodium, lithium, strontium.

16. State the characteristic lines of the spectra of the new metals, cæsium and rubidium, and describe the chemical methods by which these metals have been separated from potassium.

17. What are the distinguishing tests of baryta, lime, and magnesia, respectively?

18. What is the composition of cast iron, and how is it converted into malleable iron?

19. Describe the principal varieties of sugar and their distinguishing properties.

20. Mention the more important acids of the form O_{2n}, H_{2n}, O_4, and state how they can be derived from their respective alcohols.

21. Give an account of the electrical condenser, and of the mode of employing it to exhibit the tension of the poles of a voltaic pile.

22. If the gold leaves of an electroscope are diverging from a permanent charge, how can it be determined whether the electricity is positive or negative?

23. Show, by Ohm's theorem, that when the terminal plates of a voltaic battery are connected by a thick and short copper wire, the force of the current is independent of the number of elements.

24. Give an account of voltaic induction, and of the properties of induced currents.

The following may be substituted for questions 21, 22, 23, and 24:—

1. Describe the compounds of mercury and chlorine, their preparations and properties.

2. What are the distinguishing properties of cane sugar, and of glucose?

3. Describe the action of polarized light on solutions of sugar.

4. Give a general account of the derived ammonias, and of the methods of preparing them.

NATURAL HISTORY.—*Examiner Dr. Wyville Thomson.*

ZOOLOGY.

1. Give the general characters of the sub-kingdom Protozoa.

2. What are the properties of Sarcode?

3. Give the characters of the Foraminifera, and state some of the principal structural modifications in the group.

4. Describe the genus Grantia among Sponges.

5. Give the general characters of the sub-kingdom Cœlenterata, and the character of its principal subdivisions.

6. How would you distinguish a Coryne from a Sertularia?

7. What is the structure, and what are the functions of thread-cells?

8. Describe the mode of reproduction in Tubularia, or in Campanularia.

9. What are the structural differences between the umbrellas of the Steganophthalmata, and the nectocalyces of the naked-eyed Medusæ?

10. What is the general structure of Actinia?

11. Describe the general features of a Coral reef.

12. Describe the ambulacral vascular system in an Echinus.

Appendix, No. 8.

General Class Examination.

13. Describe the structure of a Tape-worm, and refer it to its genus, order, and class.

14. Describe the arrangement of the nervous system in the Annulosa.

15. Give the distinguishing characters of a Gasteropod, a Cephalopod, and a Pteropod, among Mollusca.

16. What special characters distinguish the skeleton of a bony fish from that of a Reptile or Mammal?

17. What bones, according to Owen's view, constitute the hæmal arch and appendages of the parietal vertebra in Fishes?

18. Describe the heart, and give an outline of the circulation in Fishes.

19. In what Fishes do we find electric organs developed? and what is the structure of these organs?

20. Name the principal fins (paired and unpaired) in Fishes, and state their positions.

21. Describe the gills in the Lancelet, the Lamprey, the Perch, and the Shark.

22. To what order among Fishes do the Salmonidae belong?

23. Describe the peculiar modification of the skeleton in Tortoises.

24. Describe the modifications of the anterior extremity met with in the class Reptilia, recent and fossil.

25. Distinguish the Batrachii among Reptiles from Saurii.

26. Describe the foot in the Raptores, and contrast it with that of the Scansores.

27. What bones of the wing of a bird support the primary flag-feathers?

28. Describe the dentition of the Rodentia.

29. Describe any peculiarities in the skeleton of the Marsupialia and of the Monotremata.

BOTANY.

1. Describe and distinguish the spiral, scalariform, dotted and disciferous tissues, and indicate the plants and the parts of plants in which these tissues are severally found.

2. Describe the phenomena of the motion of fluids within vegetable cells.

3. What are raphides; and what is their usual composition?

4. Enumerate the principal substances which form the secreted contents of vegetable cells.

5. Describe some well-marked form of cell multiplication.

6. What is laticiferous tissue? What are its functions; and in what parts of plants does it principally occur?

7. Describe the structure and mode of growth of a palm stem, and state in what it differs from the stem of an ordinary grass.

8. Describe, 1, an orthotropal; 2, an anatropal; and 3, a campylotropal ovule.

9. What is the position, the structure, and the function of the conducting tissue of the style?

10. Give the *distinguishing* characters and the therapeutic properties of the following Natural Orders:—Umbelliferæ, Cruciferæ, Leguminosæ, and Boraginaceæ.

11. Name any economic plants belonging to the Natural Order Euphorbiaceæ. State their properties and uses, their mode of cultivation and the regions in which they are cultivated.

12. Describe the structure of the fig, the strawberry, and the pine-apple.

13. What are the properties and the economic uses of the two species (or varieties) Cannabis Indica and Cannabis Sativa?

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General Class Examination.

14. How would you distinguish the Orchidaceæ from the Iridaceæ?

15. Describe the following parts of a moss:—the seta, the theca, the calyptra, the peristome.

16. Name the three plants provided, refer them to their several natural orders, and give your reasons.

17. To what natural orders do the following genera belong:—Caltha, Anemone, Lathyrus, Scilla, Fumaria, Stellaria, Pelargonium, Musa, Chamærops?

PHYSICAL GEOGRAPHY.—*Examiner, Dr. Wyville Thomson.*

1. Give a general sketch of the distribution of active volcanic vents.
2. What is the structure of a sub-aërial volcanic cone?
3. What relation in distribution and in apparent cause does volcanic bear to earthquake action?
4. Describe the principal phenomena connected with the formation and the melting of icebergs.
5. What are the chief causes of the divergence of the isothermal lines from the parallels of latitude?
6. Sketch generally the distribution of the isabnormal lines.
7. Give some instances of the sudden elevation of large tracts of land, and indicate the conditions under which these elevations have taken place.
8. Give a sketch of the distribution of Coral reefs.

NATURAL PHILOSOPHY.—*Examiner, Dr. Stevelly.*

[FOR HONOR CLASS.]

1. A perfectly hard body is moving obliquely in a given line towards a perfectly hard, smooth, and immovable plane, given in position; investigate the rate of velocity after the collision, both as to direction and magnitude, with the velocity before: and if v be the velocity before the collision, give the expression for the lost velocity.

2. Given the directions of two forces which act at the same point of a body and the direction of their equivalent (or of its equal and opposite, the force that would equilibrate with them); prove that if you draw any line whatever across these three, the three forces will bear to each other respectively the ratio of the rectangles under the intercepted parts of these respective directions between this line and the point of application of the forces, and the portions of this line intercepted between the directions of the other two forces.

3. Show how to find the centre of gravity of three heavy lines which form the perimeter of a given triangle, their breadth and thickness being supposed indefinitely small; and prove, that that centre coincides with the centre of the circle inscribed in the triangle formed by joining the middle points of the sides of the given triangle.

4. Two forces which have to each other the ratio of m to n are applied to a lever at two given points, and in given directions; find the position that the fulcrum must have in order that these forces may equilibrate.

5. Find the algebraic expression for the space a body falling freely by the force of gravity g would describe from rest in the same time that another body would run from rest down the length of a smooth inclined plane whose length is l, and height is h; and from this give the simple geometric construction by which the simultaneous places of two bodies

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would be marked, which were discharged at the same instant, from the top, one to run along the plane, the other to fall freely and vertically.

General Class Examination.

6. Show by a general expression, derived from Galileo's Theorem, that the spaces described by a body falling freely, under the action of a uniformly accelerating force, in any equal successive portions of time, are in the proportion of the successive terms of the series of odd numbers.

7. Explain how a given point of a suspended heavy body may be made to oscillate in the arc of a cycloid whose axis is in a vertical position: and if the centre of gravity be that point, show how the free force which accelerates its motion along that path varies. Investigate the variation of the free force, when the path is a circular arc.

8. Show that the diminution of the force of gravity caused by the diurnal rotation of the earth (supposed to be an exact sphere) is proportional to the square of the cosine of the latitude of the place of observation.

9. Kepler found, when examining the observations made by Tycho Brahe, that the area of the sun's apparent circular disc was continually, through the year, proportional to the apparent angular motion of the sun among the fixed stars per hour (his apparent "horary motion"). Explain how this fact led him to the discovery of the first law of planetary motion. What conclusion did Newton deduce from this first law?

10. Suppose two of the planets to move in exact concentric circles round the sun, supposed at rest in the common centre; and that the squares of their periodic times are to each other as the cubes of the radii of the circles they describe (that is, their distances from the sun), deduce from these data that the accelerating forces of gravity towards the sun, exercised on each, are reciprocally as the squares of the distances. Find also the proportion of their moving forces, or weights, towards the sun.

11. Find the distance through which either of the foregoing bodies would require to fall from rest, under the influence of a uniform force equal to that exercised on it at every instant by the sun, in its orbit, in order that it should acquire the velocity with which it is moving in its orbit.

SPECIAL PRIZE EXAMINATION.

MIXED MATHEMATICS.—*Examiner, Dr. Stevelly.*

1. Show that any number of couples, acting on a rigid body in the same or parallel planes, can be reduced to a single equivalent couple, or are in equilibrio. *a*, Determine the equivalent; or, *b*, State the condition of equilibrium.

2. Two couples act on the same rigid body in planes neither coincident nor parallel, find their equivalent.

3. Explain what is meant by "The Central Axis" of a system of forces which act on several points of a rigid body; and find its equations.

4. Prove that if a right cylinder be described round the central axis of such a system, that the principal moment retains the same value for any origin taken on the surface of that cylinder.

5. Prove that the volume of any portion of a cylinder contained between any two plane sections of it, is equal to the area of the orthogonal section multiplied by the line joining the centres of gravity of the two plane sections which bound that volume.

6. Apply Guldinus' properties of the centre of gravity to find the area of the surface and the solid contents of the anchor-ring.

7. A heavy elastic string is fastened at one end, and has a weight

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General Class Examination.

attached to the other, and hangs vertically; determine the total extension of it, taking the weight of its own parts into account.

8. Find the attraction of a number of equal particles ranged continuously in the form of a circular arc, on a particle placed at the centre of that arc, the particles attracting with a force proportional to the produce of their masses divided by the squares of their distances.

9. Show that if a shell of uniform density be bounded by two concentric, similar, and similarly situated ellipsoidal surfaces, the total attraction of that shell on a particle placed anywhere within it vanishes.

10. Show that a heavy particle may be made to oscillate in a cycloid properly placed; and show, that when so oscillating, the accelerating force of gravity along the curve is always directed towards the vertex, and varies as the distance of the particle from that point of its path.

11. Supposing a to denote the acceleration of the motion of a particle along its path s, prove that $a = \frac{d^2s}{dt^2}$.

12. Prove that at any point of the motion of a particle, in an orbit about a fixed centre of force, the velocity at any point in the orbit is that which the particle would acquire in descending from rest through the fourth part of the circle of curvation which passes through the centre of force, under the influence of the central force at that point of the orbit, continued uniform.

EXPERIMENTAL PHYSICS.

1. State and explain the experiments by which it is proved that, at a particular temperature, water assumes a maximum density. State what that temperature is.

2. State, and give the leading facts connected with the most remarkable known deviations from the law that bodies, *generally*, expand by an increase, and contract by a diminution of temperature.

3. Explain why one end of a permanent magnet, which will attract one end of another permanent magnet, but generally repel the other end, will always attract either end of a bar of soft iron.

4. Explain why the similar ends of two permanent magnetic bars, of different intensities, which are mutually repulsive at certain distances, will, when brought near, attract each other.

5. Describe the Leyden Jar, and the proper mode of charging it, and explain why, when its outer coating is insulated from the earth, it receives but a slight charge, and why, when properly charged, it accumulates so large a quantity of electricity.

6. Describe the Tangent Galvanometer, the manner of using it, and give the mathematical demonstration of its principle.

FIRST YEAR ENGINEERING STUDENTS.

GEOMETRICAL DRAWING AND OFFICE WORK.—*Examiner, Professor James Thomson.*

The examination comprised questions in descriptive geometry, orthographic and isometrical projection, and perspective, together with a scrutiny of drawings executed during the Session.

SECOND YEAR ENGINEERING STUDENTS.

General Class Examination.

OFFICE WORK AND FIELD WORK.—*Examiner, Professor James Thomson.*

The examination comprised questions on the business of the course, together with a scrutiny of work performed during the Session, in drawings, maps, and written exercises.

CIVIL ENGINEERING.—*Examiner, Professor James Thomson.*

1. Explain the subdivisions of a prismoid into parts, used in the formulas on which Bidder's Table of Earthwork is founded.
2. What are the chief uses of specifications for engineering works, and what are the chief matters which usually fall to be comprised in them?
3. Explain the relation between the coefficient of friction and the angle of repose, pointing out how, by a simple experiment on the angle of repose, the coefficient of friction between two given bodies may be determined.
4. Give an outline of the process explained in the lectures for estimating the stability of the cofferdam constructed by David Stevenson for excavating rock in the river Ribble.
5. Explain how, with the aid of a theodolite, to range a straight line from one given point to another, each being invisible from the other, and no point being known in the line passing through them from which they can both be seen.
6. Calculate the weight of a piece of round cast-iron pipe 24 inches bore, $1\frac{1}{4}$-inch thick, and 8 feet long, taking the weight of cast-iron at ·263 lbs. to the cubic inch.
7. Describe briefly the manufacture of Portland cement.
8. What is meant by the saltpetreing of limes, cements, and mortars? and what are the chief opinions that have been offered as to its origin?
9. In what manner would men in a diving bell under water be injured if the flexible pipe conveying air down to them should burst?

MINERALOGY AND GEOLOGY.—*Examiner, Dr. Wyville Thomson.*

1. Describe the phenomena of metamorphism, and contrast them with the effects of volcanic action on sedimentary rocks.
2. How far do you regard metamorphism a test of the age of a group of rocks?
3. Of what value would you consider physical structure and mineral composition in determining the geological age of a group of rocks?
4. Name the formations in ascending order from the variegated marls of the Trias to the white chalk, and name three fossils characteristic of each formation.
5. Characterize the principal genera of Cephalopodous mollusca, and sketch their distribution in time.
6. Name the fossils provided, and numbered 1, 2, and 3, refer them to their zoological position, and state the formations of which they are severally characteristic.
7. Describe and refer to their zoological position and to their geological horizon, the following fossil genera—*Graptolites, Zaphrentis, Actinocrinus, Trinucleus, Pentamerus, Eurypterus,* and *Lingula.*
8. Contrast, in physical characters and in chemical composition, the minerals of the Felspathic, the Hornblendic, and the Zeolitic series.

[*The Engineering Students were examined in the other classes with the Arts Students.*]

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General Class Examination.

AGRICULTURE.—*Examiner, Dr. Hodges.*

THEORY OF AGRICULTURE.

1. What is the usual composition of a properly prepared specimen of superphosphate of lime made from bone ash?

2. Give an example of the usual composition, as shown by analysis, of a specimen of superphosphate prepared from coprolites.

3. What constituents of plants do the following rocks yield by their decomposition :—Granite, Sandstone, Clay Slate?

4. State the alterations which farm-yard manure undergoes when long exposed to the air.

PRACTICE OF AGRICULTURE, AND HISTORY AND DISEASES OF FARM ANIMALS.

1. Describe the operations required to prepare a field for the cultivation of flax, and the methods employed in the treatment of the crop after its removal from the field.

2. State the quantities of seed per acre required to sow the following crops :—Wheat, Oats, Turnips.

3. Mention the parts which compose the foreleg of the horse.

4. What is the average composition of cow's milk?

[*The other classes were examined with the Arts Students.*]

FACULTY OF MEDICINE.

PRACTICE OF MEDICINE.—*Examiner, Professor Ferguson.*

1. Give all the morbid products of inflammation of the pleura, its terminations, the changes in the chest, and its parietes produced by them, and their signs.

2. State the premonitory symptoms, the peculiar features of the eruption, the complications and the sequelæ considered characteristic of Rubeola, Scarlatina, and Variola.

3. Enumerate the chief causes of Peritonitis, the symptoms and signs of its presence, its pathology and terminations.

4. Give the pathology of Apoplexy in all its stages.

5. What are the indications of treatment in Croup, the means usually employed, and the principal sources of danger to the patient?

PRACTICAL CHEMISTRY.—*Examiner, Dr. Andrews.*

1. What is the composition of the ammoniaco-magnesian phosphate, and of the phosphate of magnesia into which it is converted by heat?

2. How would you determine the amount of phosphoric acid in bone earth?

3. Describe the process for separating from one another the following bases, if present in a solution :—Fe_2O_3, BaO, CaO, MgO.

4. Explain, by symbols, the reaction which takes place when the protosulphate of iron is heated with an excess of nitric acid.

5. What are the blowpipe tests of the following bases :—potash, soda, alumina, oxide of manganese, and oxide of cobalt?

6. Describe the mode of analyzing an alloy of silver and copper.

7. Give an account of Liebig's method of preparing cyanide of potassium, and explain fully the reaction.

8. State the general principles on which Liebig's method of determining the amount of urea in urine depends.

9. What are the distinctive properties of the hippuric and uric acids?

10. What are the tests of morphia, and how would you separate that alkaloid from a complex organic liquid?

11. Describe Fehling's method of determining the amount of sugar in a given quantity of diabetic urine.

12. What are the tests of bile?

Faculty of Law.—First Year Students.

Jurisprudence.—*Examiner, Professor Leslie.*

1. What is meant by the terms "Universal Justice," and "the Fountains of Law," in Lord Bacon's aphorisms?

2. Lord Bacon attributes obscurity in a body of laws to several causes. Show, from Mr. Maine's researches, that these causes of obscurity become thicker in the progress of society, until the last agency of law reform removes them.

3. It follows from Austin's definition, that popular usage cannot either originate or extinguish positive law?

4. (*a*) There is, according to Austin, an essential difference between rules of positive law, and rules of religion and morality.

(*b*) Does that difference exist in every condition of human society?

5. How does Austin define the Sciences of Jurisprudence, Legislation, and Ethics, respectively?

6. What is the meaning of the phrase used by Mr. Mill and other writers—"the Metaphysics of positive law?"

7. What is the real nature and significance of the difference between law and equity?

8. Austin speaks of "certain notions which meet us at every step as we travel through the science of law." Do these notions meet us at every *historical* step?

9. State the substance of Austin's criticism of the distinction drawn between real and personal rights by civilians and by English lawyers respectively.

10. Explain Mr. Maine's formula of the progress of society as being "a movement from Status to Contract."

11. What is the explanation of the old rule of English law which excluded the half-blood from succession to real property?

12. Hallam ("Middle Ages," Chap. viii., Part 1.) quotes from Hickes a record of a suit in the County Court, in Canute's reign. What are, according to modern ideas, the chief defects of such a mode of trial?

13. "If any one accuse a king's thane of homicide, if he dare to purge himself, let him do it along with twelve king's thanes" (Laws of Alfred). What mode of trial is here appointed? Is there anything analogous to it in modern English jurisprudence?

14. Explain the nature and origin of the wehrgeld.

15. Point out any remarkable differences in the Laws of England as existing at the three following periods—A.D. 1062, A.D. 1162, and A.D. 1862.

Second Year Students.

Jurisprudence and Civil Law.—*Examiner, Professor Leslie.*

1. Explain and comment on Austin's conception of law as "the subject of an abstract science."—Preface, p. xxv.

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General Class Examination.

2. Explain and illustrate what Austin means by the arrangement of a body of law *in a natural order.*

3. Austin says of the distinction between *jura in rem* and *jura in personam*:—"The difference whereon it rests runs through every department of every system of Jurisprudence." Is this true of *every* system of Jurisprudence?

4. Explain the division of law into that of Persons and of Things, and give your reasons for thinking it essential or otherwise.

5. What is the difference between a *quasi contract* and an *implied contract?*

6. Point out the principal resemblances and contrasts between English and Roman equity.

7. Explain the origin of the distinction between *res mancipi* and *res nec mancipi*, and contrast it with that between *movables* and *immovables.*

8. Prove historically the fallacy of the doctrine of *Natural Rights.*

9. Is there any historical connexion between Roman and feudal tenures?

10. "The more archaic the code, the fuller and minuter is its penal legislation."—("Maine's Ancient Law," p. 368). How do you account for this phenomenon?

11. Trace the historical connexion between a Testament, a Conveyance, and a Contract.

12. What are the main problems to be solved by Historical Jurisprudence?

Matriculation Examination.

MATRICULATION EXAMINATION.—OCTOBER, 1862.

LATIN.—*Examiner, Rev. Dr. Reichel.*

I.—Translate into English any two of the following extracts:—

1. O Dea, si prima repetens ab origine pergam
Et vacet annales nostrorum audire laborum,
Ante diem clauso componat Vesper Olympo.
Nos Troja antiqua, si vestras forte per aures
Trojae nomen iit, diversa per aequora vectos
Forte sua Libycis tempestas adpulit oris.
Sum pius Aeneas, raptos qui ex hoste Penates
Classe veho mecum, fama super aethera notus.
Italiam quaero patriam et genus ab Iove summo.
Bis denis Phrygium conscendi navibus aequor,
Matre dea monstrante viam, data fata secutus.
Vix septem convulsae undis Euroque supersunt.
Ipse ignotus, egens, Libyae deserta peragro,
Europa atque Asia pulsus.

VIRGIL—*Aeneid*, Book I.

2. O Venus, regina Gnidi Paphique,
Sperne dilectam Cypron et vocantis
Thure te multo Glycerae decoram
Transfer in aedem.

Fervidus tecum puer et solutis
Gratiae zonis properentque Nymphae
Et parum comis sine te Juventas
Mercuriusque.

HORACE—*Odes*, Book I.

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3. Sed Allobroges diu in incerto habuere, quidnam consilii caperent. In altera parte erat aes alienum, studium belli, magna merces in spe victoriae: at in altera majores opes, tuta consilia, pro incerta spe certa praemia. Haec illis volventibus, tandem vicit fortuna reipublicae. Itaque Q. Fabio Sangae, cujus patrocinio civitas plurimum utebatur, rem omnem uti cognoverant aperiunt. Cicero, per Sangam consilio cognito, legatis praecepit, ut studium conjurationis vehementer simulent, ceteros adeant, bene polliceantur; dentque operam, uti eos quam maxime manifestos habeant.—SALLUST.

4. Ad haec quae visum est Caesar respondit: sed exitus fuit orationis, "Sibi nullam cum his amicitiam esse posse, si in Gallia remanerent: neque verum esse, qui suos fines tueri non potuerint, alienos occupare; neque ullos in Gallia vacare agros, qui dari tantae praesertim multitudini sine injuria possint; sed licere, si velint, in Ubiorum finibus considere, quorum sint legati apud se et de Suevorum injuriis querantur et a se auxilium petant: hoc se Ubiis imperaturum."—CAESAR—*De Bello Gallico,* Book IV.

II.—Translate the following into Latin Prose:—

Having received arms and hostages, Crassus set out into the territories of the Vocates and Tarusates. Then, indeed, the barbarians, in consternation, because they found that a town fortified both by the nature of the place and by the hand of man, had been stormed within a few days after its being reached, began to send ambassadors in all directions, to conspire together, to exchange hostages, to levy troops. Ambassadors are sent even to those states which are on the confines of Aquitania; from thence auxiliary forces and generals are summoned.

MATHEMATICS.—*Examiner, Professor Slesser.*

ARITHMETIC.

1. Give the rules for the multiplication and division of fractions, and find the value of

$$\frac{\frac{1}{2}-\frac{2}{5}}{\frac{37}{6}-1\tfrac{3}{7}\times4\tfrac{1}{5}} \text{ of £1 } 5s. \text{ and of } \frac{1}{2}-\frac{1}{7}+\frac{1}{21}-\frac{1}{6}+\frac{1}{5}.$$

2. Exhibit any decimal as a fraction and as the sum of a number of fractions.

State and prove the rule for the multiplication of decimals. Multiply 27·856 by ·0093; also divide 132·79 by 24·5, and 14570 by ·0031.

3. Show how a vulgar fraction may be reduced to a decimal. Reduce $\frac{7}{224}$ to a decimal. Will $\frac{3}{6144}$ recur when reduced to a decimal?

4. Archimedes discovered that the crown made for King Hiero consisted of gold and silver in the ratio of 2 : 1. How much per cent. was gold, and how much per cent. silver?

5. A person buys eight hundred 3 per cent. consols at 85, and five hundred more when they are at 97. How much per cent. will he get for his money, after deducting an income tax of 7*d.* in the pound?

EUCLID.

1. If one side of a triangle be produced, the exterior angle is greater than either of the interior opposite angles.

2. Parallelograms upon the same base and between the same parallels are equal to one another.

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Matriculation Examination.

ALGEBRA.

1. Explain the meaning and use of brackets and indices, and simplify $a-[b-\{c-(d-e)\}]$; and express algebraically the square and square root of $x+y+z$.

2. Explain the meaning and use of indices, and prove that $a^5+a^7=a^{12}$.

3. Multiply $1+x-a^2$ by $1-x+x^2$, and divide $x^8+2x^6+3x^4+2x^2+1$ by $x^4-2x^3+3x^2-2x+1$; also reduce to a single fraction $\frac{4}{a-b}-\frac{b}{a}+\frac{4}{a+b}$.

4. Find the greatest common measure and least common multiple of $x^2-3x-70$, $x^3-39x+70$.

5. Solve the following equations:

(1) $5x-\{8x-3\,(16-6x-\overline{4-5x})\}=6$.

(2) $\frac{1}{9}\left\{3x-6-5\left(\frac{7}{2}x-5\right)\right\}+13\,(x-5)+\frac{1}{4}=0$.

(3) $(x-a)\,(x-b)+(x-c)\,(x-d)=x^2+(x+a+b)\,(x+c+d)$.

(4) $\frac{x-3}{5}+\frac{x-7}{12}-\frac{x-8}{4}=\frac{13}{12}$.

Scholarship Examinations.

SCHOLARSHIP EXAMINATIONS.—OCTOBER, 1862.

LITERARY SCHOLARSHIPS.—FIRST YEAR STUDENTS.

GREEK.—*Examiner, Professor MacDouall.*

I.—1. Translate accurately and perspicuously the following extract from the *Menippus* of LUCIANUS :—

διελθόντες δὲ καὶ τούτους ἐς τὸ πεδίον ἐσβάλλομεν τὸ Ἀχερούσιον,* εὑρίσκομέν τε αὐτόθι τοὺς ἡμιθέους τε καὶ τὰς ἡρωΐνας καὶ τὸν ἄλλον ὅμιλον τῶν νεκρῶν κατὰ ἔθνη καὶ φῦλα διαιτωμένους,* τοὺς μὲν παλαιούς τινας καὶ εὐρωτιῶντας* καὶ (ὥς φησιν Ὅμηρος†) ἀμενηνούς,* τοὺς δ' ἔτι νεαλεῖς* καὶ συνεστηκότας,* καὶ μάλιστα τοὺς Αἰγυπτίους διὰ τὸ πολυαρκὲς* τῆς ταριχείας.* τὸ μέντοι διαγινώσκειν ἕκαστον οὐ πάνυ τι ἦν ῥᾴδιον· ἅπαντες γὰρ ἀτεχνῶς* ἀλλήλοις γίνονται ὅμοιοι, τῶν ὀστέων γεγυμνωμένων· πλὴν μόγις τε καὶ διὰ πολλοῦ ἀναθεωροῦντες αὐτοὺς ἐγινώσκομεν. ἔκειντο δ' ἐπ' ἀλλήλοις ἀμαυροὶ* καὶ ἄσημοι* καὶ οὐδὲν ἔτι τῶν παρ' ἡμῖν καλῶν φυλάττοντες. * * τοιγάρτοι ἐκεῖνα ὁρῶντι ἐδόκει μοι ὁ τῶν ἀνθρώπων βίος πομπῇ τινι μακρᾷ προσεοικέναι, χορηγεῖν* δὲ καὶ διατάττειν ἕκαστα ἡ Τύχη διάφορα καὶ ποικίλα τοῖς πομπεύουσι σχήματα προσάπτουσα· τὸν μὲν γὰρ λαβοῦσα, εἰ τύχοι, βασιλικῶς διεσκεύασε, τιάραν τε ἐπιθεῖσα καὶ δορυφόρους παραδοῦσα καὶ τὴν κεφαλὴν στέψασα τῷ διαδήματι, τῷ δὲ οἰκέτου σχῆμα περιέθηκε, τὸν δέ τινα καλὸν εἶναι ἐκόσμησε, τὸν δὲ ἄμορφον καὶ γελοῖον παρεσκεύασε· παντοδαπὴν* γάρ, οἶμαι, ἔδει γενέσθαι τὴν θέαν.* πολλάκις δὲ καὶ διὰ μέσης τῆς πομπῆς μετέβαλε τὰ ἐνίων* σχήματα, οὐκ ἐῶσα ἐς τέλος διαπομπεῦσαι* ὡς ἐτάχθησαν, ἀλλὰ μεταμφιέσασα* τὸν μὲν Κροῖσον† ἠνάγκασε τὴν οἰκέτου καὶ αἰχμαλώτου* σκευὴν ἀναλαβεῖν, τὸν δὲ Μαιάνδριον,† τέως ἐν τοῖς οἰκέταις πομπεύοντα, τὴν Πολυκράτους† τυραννίδα μετενέδυσε.* καὶ μέχρι μέν τινος εἴασε χρῆσθαι τῷ σχήματι· ἐπειδὰν δ' ὁ τῆς πομπῆς καιρὸς παρέλθῃ,*

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τηνικαῦτα* ἕκαστος, ἀποδοὺς τὴν σκευὴν καὶ ἀποδυσάμενος τὸ σχῆμα μετὰ τοῦ σώματος, οἷόςπερ ἦν πρὸ τοῦ γίνεται, μηδὲν τοῦ πλησίον διαφέρων. ἔνιοι δ' ὑπ' ἀγνωμοσύνης,* ἐπειδὰν ἀπαιτῇ τὸν κόσμον ἐπιστᾶσα ἡ Τύχη, ἄχθονταί τε καὶ ἀγανακτοῦσιν, ὥςπερ οἰκείων τινῶν στερισκόμενοι* καὶ οὐχ ἃ πρὸς ὀλίγον ἐχρήσαντο* ἀποδιδόντες.

2. In brief notes upon the words marked with an *asterisk* point out whatever may seem most noticeable, in regard to etymology or formation,—to usage,—or to accentuation, if this discriminate any word found here from another.

3. Advert very briefly to allusions conveyed in the names marked with an *obelus*.

II.—Translate likewise this passage from the *Hellenica* of Xenophon :—

ὁ δὲ Καλλικρατίδας, ξυγκαλέσας τοὺς Λακεδαιμονίων ἐκεῖ παρόντας, ἔλεγεν αὐτοῖς τοιάδε. "ἐμοὶ μὲν ἀρκεῖ οἴκοι μένειν, καί, εἴτε Λύσανδρος εἴτε ἄλλος τις ἐμπειρότερος περὶ τὰ ναυτικὰ βούλεται εἶναι, οὐ κωλύω τὰ κατ' ἐμέ· ἐγὼ δ' ὑπὸ τῆς πόλεως ἐπὶ τὰς ναῦς πεμφθεὶς οὐκ ἔχω τί ἄλλο ποιῶ ἢ τὰ κελευόμενα ὡς ἂν δύνωμαι κράτιστα. ὑμεῖς δὲ πρὸς ἃ ἐγώ τε φιλοτιμοῦμαι καὶ ἡ πόλις ἡμῶν αἰτιάζεται,—ἴστε γὰρ αὐτὰ ὥςπερ καὶ ἐγώ,—ξυμβουλεύετε τὰ ἄριστα ὑμῖν δοκοῦντα εἶναι περὶ τοῦ ἐμὲ ἐνθάδε μένειν ἢ οἴκαδε ἀποπλεῖν ἐροῦντα τὰ καθεστῶτα ἐνθάδε." οὐδενὸς δὲ τολμήσαντος ἄλλο τι εἰπεῖν ἢ τοῖς οἴκοι πείθεσθαι ποιεῖν τε ἐφ' ἃ ἥκοι, ἐλθὼν παρὰ Κῦρον ᾔτει μισθὸν τοῖς ναύταις. ὁ δὲ αὐτῷ εἶπε δύο ἡμέρας ἐπισχεῖν. Καλλικρατίδας δέ, ἀχθεσθεὶς τῇ ἀναβολῇ καὶ ταῖς ἐπὶ τὰς θύρας φοιτήσεσιν, εἰπὼν ἀθλιωτάτους εἶναι τοὺς Ἕλληνας, ὅτι βαρβάρους κολακεύουσιν ἕνεκα ἀργυρίου, φάσκων τε, ἢν σωθῇ οἴκαδε, κατά γε τὸ αὐτῷ δυνατὸν διαλλάξειν Ἀθηναίους καὶ Λακεδαιμονίους, ἀπέπλευσεν εἰς Μίλητον.

Translate with accuracy and spirit the following lines of the *Ilias* :—

"Ἄλλοι μέν ῥ' ἕζοντο,[1] ἐρήτυθεν[2] δὲ καθ' ἕδρας·

* * * * *

ἀλλὰ μάλ' οὐκ Ἀχιλῆϊ χόλος φρεσίν, ἀλλὰ μεθήμων.[47]
[ἦ γὰρ ἄν, Ἀτρεΐδη! νῦν ὕστατα[48] λωβήσαιο."[32]]

1. [1–32.] Parse fully and accurately the words thus numbered, giving the Attic forms wherever these differ from the Homeric, and for such words as are not used in Attic substituting Attic equivalents.

2. [33–48.] Give the etymology and some lexical affinities of the words thus numbered, briefly discussing doubtful cases.

3. Exemplify, from the lines given above, various characteristics of Homeric versification :—

4. Show (*a*) how the most objectionable examples of *hiatus* may be remedied, and (*b*) how room may be found for restoring letters (such as Ϝ, λ, &c.), which commenced certain words in Homeric Greek, though they fell off afterwards.

Latin.—*Examiner, Rev. Dr. Reichel.*

I.—Translate *accurately* and *fully* the following extracts :—

1. Singulari militum nostrorum virtuti consilia cuiusque modi Gallorum occurrebant, ut est summae genus solertiae atque ad omnia imitanda et efficienda, quae ab quoque traduntur, aptissimum. Nam et laqueis falces

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avertebant, quas cum destinaverant, tormentis introrsus reducebant, et aggerem cuniculis subtrahebant, eo scientius, quod apud eos magnae sunt ferrariae atque omne genus cuniculorum notum atque usitatum est. Totum autem murum ex omni parte turribus contabulaverant atque has coriis intexerant. Tum crebris diurnis nocturnisque eruptionibus aut aggeri ignem inferebant aut milites occupatos in opere adoriebantur et nostrarum turrium altitudinem, quantum has cotidianus agger expresserat, commissis suarum turrium malis adaequabant et apertos cuniculos praeusta et praeacuta materia et pice fervefacta et maximi ponderis saxis morabantur moenibusque appropinquare prohibebant.—CAESAR.

2. Hunc ego hominem tam acrem, tam paratum, tam audacem, tam callidum, tam in scelere vigilantem, tam in perditis rebus diligentem, nisi ex domesticis insidiis in castrense latrocinium compulissem—dicam id quod sentio Quirites—non facile hanc tantam molem mali a cervicibus vestris depulissem. Non ille nobis saturnalia constituisset, neque tanto ante exiti ac fati diem reipublicae denuntiasset nec commisisset ut signum ut literae suae testes denique manifesti sceleris deprehenderentur. Quae nunc, illo absente, sic gesta sunt, ut nullum in privata domo furtum unquam sit tam palam inventum quam haec in tota republica conjuratio manifesto inventa atque deprehensa est. Quod si Catilina in urbe ad hanc diem remansisset, quamquam quoad fuit omnibus ejus consiliis occurri atque obstiti, tamen, ut levissime dicam, dimicandum nobis cum illo fuisset, neque nos unquam dum illo in urbe hostis fuisset, tantis periculis rempublicam tanta pace, tanto otio tanto silentio liberassemus.—CICERO.

II.—1. Give the meanings of the following words :—Longurius, musculus, amentum, alces, urus, vitrum, pĭlus, pīlum, pĭla, pīla.

2. Give the modern names of the following places and rivers, and mark the quantities of their vowels :—Avaricum, Genabum, Noviodunum, Bibracte, Lutetia, Samarobriva, Liger, Elaver, Sequana, Arar, Matrona.

3. Draw an outline map of Gaul, marking on it the *Provincia* and the territories of the following tribes :—Aedui, Bituriges, Sequani, Aquitani, Belgae, Veneti ; and the course of the rivers Arar, Elaver, Liger, Sequana, Matrona, Rhenus, Rhodanus.

III. Translate the following into Latin prose :—

At length, shut out by the blockade from everything they required, their beasts of burden being already four days without fodder, and being destitute of water, of firewood, and of corn, they requested a conference, and this, if possible, in a place withdrawn from the soldiery. When this was refused by Cæsar, and a colloquy granted provided they chose to hold it publicly, the son of Afranius is given to Cæsar as a hostage. They came to the place which Cæsar chose. In the hearing of both armies Afranius speaks: he says that there is no reason for entertaining displeasure against either themselves or their soldiers, because they had resolved to preserve their fidelity towards their commander-in-chief, Cn. Pompey. But they had now satisfied the demands of duty, and had borne punishment enough. They had endured the want of all things: and now being enclosed almost like wild beasts, they were kept from water, kept from going out, and could neither bear the suffering in their persons nor the disgrace in their spirits. Accordingly, they confessed that they were conquered: they begged and besought, if any place for mercy were left, that they might not be necessitated to come forth to the last punishment.—CIV., I. 84.

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I. Translate into English the following passages, adding notes, when necessary, to explain the difficulties, or to specify the various ways in which the passages have been understood, or any emendations which may have been suggested:—

1. En unquam patrios longo post tempore fines
Pauperis et tuguri congestum caespite culmen
Post aliquot mea regna videns mirabor aristas?

2. Ut vidi, ut perii, ut me malus abstulit error!

3. Talia saecla suis dixerunt currite fusis
Concordes stabili fatorum numine Parcae.

4. Non nostrum inter vos tantas componere lites
Et vitula tu dignus et hic et quisquis amores
Aut metuet dulces aut experietur amaros.

5. Incipe parve puer risu cognoscere matrem:
Matri longa decem tulerunt fastidia menses:
Incipe, parve puer, cui non risere parentes
Nec deus hunc mensa dea nec dignata cubili est.
VIRGIL—*Eclogues.*

6. Ut nuper, actus cum freto Neptunius
Dux fugit ustis navibus,
Minatus urbi vincla quae detraxerat
Servis amicus perfidis.
Romanus, eheu posteri negabitis,
Emancipatus feminae
Fert vallum et arma miles et spadonibus
Servire rugosis potest,
Interque signa turpe militaria
Sol adspicit conopium.
At hoc frementes, verterunt bis mille equos
Galli canentes Caesarem,
Hostiliumque navium portu latent
Puppes sinistrorsum citae.

. . . .

Terra marique victus hostis punico
Lugubre mutavit sagum.
HORACE—*Epodes.*

II.—1. *a.* In what order do the Eclogues of Virgil seem to have been written?

β. Mention the chief historical events alluded to in them, giving dates.

γ. Specify *briefly* the chief defects of Virgil's Pastorals, giving examples.

2. *a.* In what particulars, with regard to *metre* and *subject*, do the Epodes differ from the other lyrics of Horace?

β. Who is the *dux Neptunius* in the extract from Horace? and what events are alluded to in it? Give dates.

γ. Give the right explanation of *sinistrorsum citae.*

III.—*a.* Scan the following lines:—

1. Clamassent ut litus Hyla Hyla omne sonaret.
2. Credimus an qui amant ipsi sibi somnia fingunt.
3. Uno eodemque igni sic nostro Daphnis amore.—VIRGIL.
4. Inachia furere silvis honorem decutit.—HORACE—*Epodes.*

β. What principle of scansion is exhibited in the first and second of the above lines?

2. What kind of verse is that of the fourth line?

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γ. Explain what is meant by *caesura*, and specify the chief caesuras used in the hexameter. What is the bucolic caesura?

IV. Give the meaning of the following words, and mark their quantities:—Sinum, intuba, myrica, cantharus, corylus, fraxinus, alnus, morus, sandyx, corymbus, calathus, serpyllum, allium, ligustrum, vaccinium, pedum, paliurus, mulctra, arvina, dolo, galerus, poro, caetra, cateia.

History and the English Language.—*Examiner, Professor Craik.*

1. *Every competitor* will write a short Essay on "What we owe to our Ancestors."

2. Explain how the kingdom of England arose out of what is commonly called the Saxon Heptarchy.

3. Deduce the descent of Queen Victoria from William the Conqueror.

4. Give a rapid outline of the commencement, course, and termination of any of the Three Punic Wars.

5. Sketch the history of the reign of Nero.

One of the questions on English History, and one of those on Roman History, must be answered by every competitor.

Second Year Students.

Greek.—*Examiner, Professor MacDouall.*

I.—Translate accurately and with spirit these lines from the XVIth Book of the *Ilias* :—

τόν[45] δ' ἄτη φρένας[45] εἷλε, λύθεν[1] δ' ὑπὸ φαίδιμα γυῖα,
στῆ δὲ ταφών·[2] ὄπιθεν δὲ μετάφρενον[3] ὀξέϊ δουρὶ
ὤμων[46] μεσσηγὺ σχεδόθεν[4] βάλε Δάρδανος ἀνήρ,
Πανθοΐδης Εὔφορβος, ὃς ἡλικίην[47] ἐκέκαστο[5]
ἔγχεΐ θ' ἱπποσύνῃ τε πόδεσσί[6] τε καρπαλίμοισιν·[7]
καὶ γὰρ δὴ τότε φῶτας[8] ἐείκοσι[9] βῆσεν[10] ἀφ' ἵππων,
πρῶτ' ἐλθὼν σὺν ὄχεσφι,[11] διδασκόμενος[48] πολέμοιο.[48]
ὅς τοι πρῶτος ἐφῆκε βέλος, Πατρόκλεες ἱππεῦ!
οὐδ' ἐδάμασσ'. ὁ μὲν αὖτις ἀνέδραμε,[12] μίκτο[13] δ' ὁμίλῳ,
ἐκ χροὸς[14] ἁρπάξας δόρυ μείλινον,[15] οὐδ' ὑπέμεινε
Πάτροκλον γυμνόν περ ἐόντ' ἐν δηϊοτῆτι.[16]
Πάτροκλος δὲ θεοῦ πληγῇ καὶ δουρὶ δαμασθεὶς
ἂψ ἑτάρων εἰς ἔθνος ἐχάζετο[17] κῆρ'[18] ἀλεείνων.
Ἕκτωρ δ', ὡς εἶδεν Πατροκλῆα μεγάθυμον
ἂψ ἀναχαζόμενον, βεβλημένον ὀξέϊ χαλκῷ,
ἀγχίμολόν[19] ῥά οἱ[49] ἦλθε κατὰ στίχας, οὖτα[20] δὲ δουρὶ
νείατον[21] ἐς κενεῶνα,[22] διὰ[23] πρὸ[23] δὲ χαλκὸν ἔλασσε·[23]
δούπησεν δὲ πεσών, μεγα δ' ἤκαχε[24] λαὸν Ἀχαιῶν.
ὡς δ' ὅτε σῦν ἀκάμαντα λέων ἐβιήσατο[50] χάρμῃ,[25]
ὥ τ'[26] ὄρεος κορυφῇσι μέγα φρονέοντε μάχεσθον
πίδακος ἀμφ' ὀλίγης,—ἐθέλουσι δὲ πιέμεν[27] ἄμφω,—
πολλὰ δέ τ' ἀσθμαίνοντα λέων ἐδάμασσε[50] βίηφιν,[28]

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ὣς πολέας[29] πέφνοντα[30] Μενοιτίου ἄλκιμον υἱὸν[51]
Ἕκτωρ Πριαμίδης σχεδὸν ἔγχεϊ θυμὸν[51] ἀπηύρα·[31]
καί οἱ[52] ἐπευχόμενος ἔπεα πτερόεντα προςηύδα·[32]
"Πάτροκλ'! ἦ που ἔφησθα πόλιν κεραϊξέμεν[33] ἀμήν,[34]
Τρωϊάδας δὲ γυναῖκας, ἐλεύθερον[35] ἦμαρ[35] ἀπούρας,[36]
ἄξειν ἐν νήεσσι φίλην ἐς πατρίδα γαῖαν,
νήπιε![37] τάων[38] δὲ πρόσθ' Ἕκτορος ὠκέες ἵπποι
ποσσὶν ὀρωρέχαται[39] πολεμιζέμεν· ἔγχεϊ δ' αὐτὸς
Τρωσὶ[53] φιλοπτολέμοισι μεταπρέπω, ὅς σφιν[40] ἀμύνω
ἦμαρ[35] ἀναγκαῖον·[35] σὲ δέ τ' ἐνθάδε γῦπες ἔδονται.[11]
ἆ δεῖλ'! οὐδέ τοι[54] ἐσθλὸς ἐὼν χραίσμησεν[42] Ἀχιλλεύς,
ὅς πού τοι μάλα πολλὰ μένων ἐπετέλλετ'[43] ἰόντι·
'μή[56] μοι[55] πρὶν ἰέναι, Πατρόκλεις ἱπποκέλευθε![44]
νῆας ἐπὶ γλαφυράς, πρίν γ' Ἕκτορος ἀνδοφόνοιο
αἱματόεντα χιτῶνα περὶ στήθεσσι δαΐξαι.'[57]
ὥς πού σε προςέφη, σοὶ[58] δὲ φρένας[58] ἄφρονι πεῖθε."

II.—*a.* [1-44.] Parse fully the words thus numbered—noticing whatever invites remark in respect to formation, derivation, and usage, and collating Attic synonymes or representatives.

b. [45-58.] Elucidate the construction of the words or phrases thus numbered.

The English Language.—*Examiner, Professor Craik.*

1. *Every competitor* will write a short Essay on either—
   The Greek language as compared with the English ; or,
   The Latin language as compared with the English.
2. Explain the two great revolutions which have converted the language spoken or written in England before the Norman Conquest into that now in use.
3. State the leading characteristics, but without going into minute details, which distinguish the English of Chaucer from that of the present day.
4. Give what appears to you to be the correct account of the proportions in which its two great constituent elements exist in our present English, and of the extent to which they are usually employed in writing and speaking.

Modern Languages.—*Examiner, Dr. Frädersdorff.*

Translate into English :—

J'avais donné la plupart de ces derniers jours à ce qu'un aussi court séjour qu'un séjour de près de six mois avait pu me faire regarder comme des amis particuliers, surtout à Grimaldo. Quelque sensible joie et quelque empressement que je sentisse d'aller retrouver Madame de Saint-Simon et mes amis, je ne pus quitter l'Espagne sans avoir le cœur serré, sans regretter des personnes dont j'avais reçu tant de marques personnelles de s'accommoder de moi, et dont tout ce que j'avais vu dans le gros de la nation m'avait fait concevoir de l'estime jusqu'au respect, et une si juste reconnaissance pour tant de seigneurs et de dames en particulier. J'ai conservé long temps quelque commerce de lettres avec quelques-uns, mais avec Grimaldo tant qu'il a vécu, et après sa disgrâce et sa chute, qui n'arriva

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que long temps après, avec plus de soin et d'attention qu'auparavant. L'attachement plein de respect et de reconnaissance pour le roi et la reine d'Espagne m'engagea à me donner l'honneur de leur écrire en toutes occasions, surtout à répandre mon extrême douleur à leurs pieds au renvoi de l'infante. Je consultai là-dessus l'évêque de Fréjus, déjà plus maître que M. le Duc, qui me manda que je pouvais écrire, résolu, s'il m'eut refusé, de le dire à Laullez et de le prier de le mander à leurs Majestés catholiques. Elles me firent souvent l'honneur de me répondre avec toutes sortes de bontés, et de charger toujours leurs nouveaux ministres en France, et les personnes considérables qui y venaient se promener avec leur permission, de me renouveler, expressément les mêmes bontés de leur part.—*Mémoires de Saint-Simon.*

Translate into French :—

There is, indeed, in the genius of the French something of a sociableness, of a sympathy—something which spreads itself with more facility and energy than in the genius of any other people. It may be in the language, or the particular turn of mind of the French nation ; it may be in their manners, or that their ideas, being more popular, present themselves more clearly to the masses, penetrate among them with greater ease ; but, in a word, clearness, sociability, sympathy, are the particular characteristics of France, of its civilization; and these qualities render it eminently qualified to march at the head of European civilization.

In studying, then, the history of this great fact, it is neither an arbitrary choice nor convention that leads us to make France the central point from which we shall study it ; but it is because we feel that in so doing we in a manner place ourselves in the very heart of civilization itself—in the heart of the very fact which we desire to investigate.—M. GUIZOT: *Hist. de la Civilisation en Europe* (Oxford Translation).

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1. State what general rule or rules you would lay down for the use of the subjunctive mood, and give instances.

2. State any forms of expressions or rules of grammar, which are derived from Latin.

3. What mood would you employ after *qui que ce soit, quoi que ce soit, quelque, quel que ?*

4. What is the number of the following words in French: *cresses, dregs, font, measles, oats, spinach, politics ?*

5. On what circumstance depends the different use of *en* and *dans* in French, relative to *time?* Translate : IN *three days I shall have finished my work. He has performed his task* IN *less than three weeks.*

6. Show the exact force of *puisque* and of *parceque*, as denoting a logical ground ; also of *au moins*, and *du moins*, Translate : *If he is not rich,* AT LEAST (= at any rate) *he has to live. He has two hundred a year* AT LEAST.

7. How do you render *out of* and *from*, in French, in the following combinations ?—*He used to drink* OUT OF *a large goblet. To draw* (*water*) FROM *the source. To drink* OUT OF *a bottle.*

8. Distinguish between the notion conveyed by venir *de* and venir *à* followed by an infinitive, and translate : *Alas! if my father* WERE *to die! What a misfortune if he* WERE *to die! He* IS JUST *dead. He* HAD JUST *died when I arrived.* Render by the proper French grammatical idiom : *I have heard my father say, that, &c. I have heard my father say it.*

9. Say what you know about the Provincial Letters of Pascal.

10. Characterize briefly the lyrical poets of France.

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Translate into English :—

„Nicht leichtſinniger Weiſe," fing er an, „ſtürze ich mich und euch in dieſen neuen gefahrvollen Krieg. Mein Zeuge iſt der allmächtige Gott, daß ich nicht aus Vergnügen fechte. Der Kaiſer hat mich in der Perſon meiner Geſandten auf's Grauſamſte beleidigt, er hat meine Feinde unterſtützt, er verfolgt meine Freunde und Brüder, tritt meine Religion in den Staub und ſtreckt die Hand aus nach meiner Krone. Dringend flehen uns die unterdrückten Stände Deutſchlands um Hülfe, und, wenn es Gott gefällt, ſo wollen wir ſie ihnen geben.

„Ich kenne die Gefahren, denen mein Leben ausgeſetz ſeyn wird. Nie habe ich ſie gemieden, und ſchwerlich werde ich ihnen ganz entgehen. Bis jetzt zwar hat mich die Allmacht wunderbar behütet; aber ich werde doch endlich ſterben in der Vertheidigung meines Vaterlandes. Ich übergebe euch dem Schutze des Himmels. Seyd gerecht, ſeyd gewiſſenhaft, wandelt unſträflich, ſo werden wir uns in der Ewigkeit wieder begegnen.

„An euch, meine Reichsräthe, wende ich mich zuerſt. Gott erleuchte euch und erfülle euch mit Weisheit, meinem Königreiche ſtets das Beſte zu rathen. Euch, tapferer Adel, empfehle ich dem göttlichen Schutze. Fahret fort, euch als würdige Nachkommen jener heldenmüthigen Gothen zu erweiſen, deren Tapferkeit das alte Rom in den Staub ſtürzte. Euch, Diener der Kirche, ermahne ich zur Verträglichkeit und Eintracht; ſeyd ſelbſt Muſter der Tugenden, die ihr predigt, und mißbraucht nie eure Herrſchaft über die Herzen meines Volks. Euch, Deputirte des Bürgerund Bauernſtandes, wünſche ich den Segen des Himmels, eurem Fleiße eine erfreuende Ernte, Fülle euren Scheunen, Ueberfluß an allen Gütern des Lebens. Für euch Alle, Abweſende und Gegenwärtige, ſchicke ich aufrichtige Wünſche zum Himmel. Ich ſage euch Allen mein zärtliches Lebewohl. Ich ſage es vielleicht auf ewig."—*Gustav Adolphs Abschiedsrede an seine Stände.*

Translate into German :—

Cosroes, king of Persia, had a minister of state whose character was so amiable, that it was difficult to determine by whom he was most beloved, the king or his people. At length this able minister demanded his dismission: but Cosroes, unwilling to lose such a faithful and wise statesman, desired an explanation. "Why would you desert me?" said the afflicted monarch. "Have you any cause of complaint? Has not the dew of my benevolence fallen upon you? Have not all my slaves been ordered to make no distinction between your commands and mine? Are not you next to my heart? Have you anything to ask that I can grant? Speak, and you shall be satisfied: only do not think of leaving me." Mitranes, the minister, made this reply: "O king! I have served you with zeal and fidelity, and thou hast most amply rewarded me: but nature now requires from me one of the most sacred of its duties. I have a son, who can learn from me how to serve thee or thy successors hereafter, as I have done: let me pursue this private duty, after all my care for the public good." Cosroes granted his request; but upon this condition—that he should take the young prince with him into his retreat, and educate both the youths together. Mitranes set out, and after five or six years' absence, returned with his pupils to court. Cosroes was overjoyed to see his son again; but, upon examination, he was greatly sorry to find that he had not made the same progress in his studies as the son of Mitranes. In short he was greatly inferior to him in the point of real merit. The king complained to the minister of this striking difference; and his reply should be a lesson to all young men of good dispositions: "O king! my son has made a better use than yours of the instructions I gave to both: my attention has been equally divided between them; but *my* son knows that his dependence must be on mankind, while I never could conceal from *yours* that men would be dependent upon him."

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QUESTIONS.

1. Decline the following substantives: der Sturm, der Degen, das Haus, der Hirt, die Hand, die Arbeit.

2. When may the e be dropped in the last syllable of the genitive and dative singular of the strong declension?

3. Decline großer Garten, der hohe Baum, dieſes ſchöne Schloß, viele neue Bücher.

4. German adjectives have two forms of declension; when are they respectively used? State the case-endings of each form.

5. When do adjectives remain unaltered?

6. Express in German words: seven, nineteen, fifty-three, one hundred and eighty-eight, first, thirty-third, seventy-seventh.

7. Decline ich, du, er, ſie, es.

8. Give the second person singular of all the tenses, in the indicative and subjunctive moods, of lieben, both active and passive.

9. Give the first person singular of the imperfect, and the past participle, of finden, ſpinnen, bitten, eſſen, reiten, and bleiben.

10. Conjugate ſein, haben, and werden.

11. What cases are governed by the following prepositions: von, mit ohne, wegen, nach?

12. Of what gender are substantives ending in heit and ſchaft? Mention any other terminations of the same gender, with exceptions.

THIRD YEAR STUDENTS.

GREEK.—*Examiner, Professor MacDouall.*

I.—Translate, in a perspicuous and animated style, the following lines from the IVth *Pythian Ode* of PINDARUS:

Στρ. α΄.

Σάμερον μὲν χρή σε παρ᾽ ἀνδρὶ φίλῳ
στᾶμεν, εὐίππου βασιλῆϊ Κυράνας, ὄφρα κωμάζοντι σὺν Ἀρκεσίλᾳ,
Μοῖσα! Λατοΐδαισιν ὀφειλόμενον Πυθῶνί τ᾽ αὔξῃς οὖρον ὕμνων,
ἔνθα ποτὲ χρυσέων Διὸς αἰητῶν πάρεδρος,
οὐκ ἀποδάμου Ἀπόλλωνος τυχόντος, ἱρέα
χρῆσεν οἰκιστῆρα Βάττον καρποφόρου Λιβύας, ἱερὰν
νᾶσον ὡς ἤδη λιπὼν κτίσσειεν εὐάρματον
πόλιν ἐν ἀργάεντι μαστῷ,

Ἀντ. α΄.

καὶ τὸ Μηδείας ἔπος ἀγκομίσαιθ᾽
ἑβδόμᾳ καὶ σὺν δεκάτᾳ γενεᾷ Θήραιον, Αἰήτα τό ποτε ζαμενὴς
παῖς ἀπέπνευσ᾽ ἀθανάτου στόματος δέσποινα Κόλχων. εἶπε δ᾽ οὕτως
ἡμιθέοισιν Ἰάσονος αἰχματᾶο ναύταις·
"κέκλυτε, παῖδες ὑπερθύμων τε φωτῶν καὶ θεῶν!
φαμὶ γαρ τᾶσδ᾽ ἐξ ἁλιπλάκτου ποτὲ γᾶς Ἐπάφοιο κόραν
ἀστέων ῥίζαν φυτεύσεσθαι μελησίμβροτον
Διὸς ἐν Ἄμμωνος θεμέθλοις.

Ἐπ. α΄.

ἀντὶ δελφίνων δ᾽ ἐλαχυπτερύγων ἵππους ἀμείψαντες θοὰς
ἀνία τ᾽ ἀντ᾽ ἐρετμῶν δίφρους τε νωμάσοισιν ἀελλόποδας.
κεῖνος ὄρνις ἐκτελευτάσει μεγαλᾶν πολίων

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μαtρόπολιν Θήραν γενέσθαι, τόν ποτε Τριτωνίδος ἐν προχοαῖς
λίμνας θεῷ ἀνέρι εἰδομένῳ γαῖαν διδόντι
ξείνια πρῴραθεν Εὔφαμος καταβὰς
δέξατ',—αἴσιον δ' ἐπί οἱ Κρονίων Ζεὺς πατὴρ ἔκλαγξε βροντάν,—

Στρ. β'.

ἀνίκ' ἄγκυραν ποτὶ χαλκόγενυν
ναΐ κρημνάντων ἐπέτοσσε θοᾶς Ἀργοῦς χαλινόν. δώδεκα δὲ πρότερον
ἁμέρας ἐξ Ὠκεανοῦ φέρομεν νώτων ὕπερ γαίας ἐρήμων
εἰνάλιον δόρυ μήδεσιν ἀνσπάσσαντες ἁμοῖς.
τουτάκι δ' οἰοπόλος δαίμων ἐπῆλθεν φαιδίμαν
ἀνδρὸς αἰδοίου πρόσοψιν θηκάμενος· φιλίων δ' ἐπέων
ἄρχετο, ξείνοις ἅτ' ἐλθόντεσσιν εὐεργέται
δεῖπν' ἐπαγγέλλοντι πρῶτον."

II.—1. In very brief notes you may elucidate the genealogical, mythical, historical, and geographical allusions in this passage.

2. Trace very concisely the sequence of ideas throughout, and arrange the incidents referred to in the order of logical prose, taking note of time, place, and causal connexion.

LATIN.—*Examiner, Rev. Dr. Reichel.*

I.—Translate the following passages accurately and fully :—

1. Legati ab Ardea Romam venerunt, de injuria querentes, ut, si demeretur ea, in foedere atque amicitia mansuros, *restituto agro*, appareret. Ab Senatu responsum est "judicium populi ab senatu rescindi non posse, praeter quam quod nullo nec exemplo nec jure fieret, concordiae etiam ordinum causa. Si Ardeates sua tempora exspectare velint, arbitriumque senatui levandae *suae injuriae* permittant, fore ut post modo gaudeant, se irae moderatos: sciantque Patribus aeque curae fuisse, ne qua injuria in eos oriretur, ac ne orta diuturna esset." Ita legati, quum se rem integram relaturos dixissent, comiter dimissi. *Patricii,* quum sine curuli magistratu respublica esset, *coiere, et interregem creavere.* Contentio, consulesne an *tribuni militum* crearentur, in interregno rem dies complures tenuit. Interrex ac senatus consulum comitia, tribuni plebis ac plebs tribunorum militum ut habeantur tendunt, vicerunt Patres, quia et plebs, patriciis seu hunc seu illum delatura honorem frustra certare supersedit: et principes plebis ea comitia, malebant quibus non haberetur ratio sui, quam quibus ut indigni praeterirentur. Tribuni quoque plebis *certamen sine effectu in beneficio apud primores Patrum reliquere.* T. Quinctius Barbatus interrex consules creat L. Papirium Mugillanum, L. Sempronium Atratinum. His consulibus cum Ardeatibus foedus renovatum est. Idque monumenti est, consules eos illo anno fuisse, qui neque in annalibus priscis, neque in libris magistratuum inveniuntur, credo quod tribuni militum initio anni fuerunt, eo, perinde ac si totum annum in imperio fuerint, suffectis his consulibus, praetermissa nomina consulum horum. Licinius Macer auctor est et in foedere Ardeatino et in linteis libris *ad Monetae* inventa.—LIVY.

Explain fully the italicised words and phrases.

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2. Quid faciam? Saltat Milonius ut semel icto
Accessit fervor capiti numerusque lucernis.
Castor gaudet equis, ovo prognatus eodem
Pugnis: quot capitum vivunt, totidem studiorum
Milia: me pedibus delectat claudere verba
Lucili ritu nostrum melioris utroque.
Ille velut fidis arcana sodalibus olim
Credebat libris, neque si male cesserat, unquam
Decurrens alio, neque si bene: quo fit ut omnis
Votiva pateat veluti descripta tabella
Vita senis. Sequor hunc, Lucanus an Appulus anceps,
Nam Venusinus arat finem sub utrumque colonus
Missus ad hoc pulsis, vetus est ut fama, Sabellis,
Quo ne per vacuum Romano incurreret hostis,
Sive quod Appula gens seu quod Lucania bellum
Incuteret violenta. Sed hic stilus haud petet ultro
Quemquam animantem et me veluti custodiet ensis
Vagina tectus; quem cur destringere coner,
Tutus ab infestis latronibus? O pater et rex
Juppiter, ut pereat positum robigine telum,
Nec quisquam noceat cupido mihi pacis! At ille,
Qui me commorit—melius non tangere, clamo,—
Flebit et insignis tota cantabitur urbe.
Cervius iratus leges minitatur et urnam,
Canidia Albuti, quibus est inimica, venenum,
Grande malum Turius, si quid se judice certes.
Ut, quo quisque valet, suspectos terreat, atque
Imperet hoc natura potens, sic collige mecum:
Dente lupus cornu taurus petit: unde nisi intus
Monstratum? Scaevae vivacem crede nepoti
Matrem: nil faciet sceleris pia dextera: mirum,
Ut neque calce lupus quemquam neque dente petit bos;
Sed mala tollet anum vitiato melle cicuta.
Ne longum faciam; seu me tranquilla senectus
Exspectat seu Mors atris circumvolat alis,
Dives, inops, Romae, seu fors ita jusserit, exsul,
Quisquis erit vitae, scribam, color.—HORACE.

II.—Translate the following into Latin Prose:—

If there be, in some men, a proneness to detract from the character even of persons unknown and indifferent; in others an advidity to hear and propagate scandal; to what principle in human nature must we ascribe these qualities? The failings of others surely add nothing to our worth, nor are they in themselves a pleasant subject of thought or of discourse. But they flatter pride, by giving an opinion of our superiority over those from whom we detract. Is it not possible that the same desire of superiority may have some secret influence upon those who have to display their eloquence in declaiming upon the corruption of human nature, and the wretchedness, fraud, and insincerity of mankind in general? It ought always to be taken for granted that the declaimer is an exception to the general rule, otherwise he would rather choose, even for his own sake, to draw a veil over the nakedness of his species. But hoping that his audience will be so civil as not to include him in the black description, he rises superior by the depression of the species, and stands alone, like Noah in the antediluvian world. This looks like envy against the human race.—REID.

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MODERN LANGUAGES.—*Dr. Frädersdorff.*

Translate into English :—

Grimoald, fils et héritier de Pepin, étant allé en pélerinage au tombeau de saint Lambert, il y fut tué, sans doute par les amis d'Alpaïde. Carl lui-même se signala comme ennemi de l'Eglise. Son surnom païen de Marteau me ferait volontiers douter s'il était chrétien. On sait que le marteau est l'attribut de Thor, le signe de l'association païenne, celui de la propriété, de la conquête barbare. Cette circonstance, expliquerait comment un empire, épuisé sous les règnes précédents, fournit tout-à-coup tant de soldats et contre les Saxons et contre les Sarrasins. Ces mêmes hommes, attirés dans les armées de Carl par l'appât des biens de l'Eglise qu'il leur prodigua, purent adopter peu à peu la croyance de leur nouvelle patrie, et préparèrent une génération de soldats pour Pepin le Bref et Charlemagne. Dans cette famille tout ecclésiastique des Carlovingiens, le bâtard, le proscrit Carl, ou Charles Martel, offre une physionomie à part et très-peu chrétienne.

D'abord les Neustriens, battus par lui à Vincy, près de Cambrai, appelèrent à leur aide les Aquitains qui, depuis la dissolution de l'empire des Francs, formaient une puissance redoutable. Eudes, leur duc, s'avança, jusqu'à Soissons, s'unit aux Neustriens, qui n'en furent pas moins vaincus. Peut-être eût-il continué la guerre avec avantage, mais il avait alors un ennemi derrière lui. Les Sarrasins, maîtres de l'Espagne, s'étaient emparés du Languedoc. De la ville romaine et gothique de Narbonne, occupée par eux, leur innombrable cavalerie se lançait audacieusement vers le Nord, jusqu'en Poitou, jusqu'en Bourgogne, confiante dans sa légèreté, et dans la vigueur infatigable de ses chevaux africains. La célérité prodigieuse de ces brigands, qui voltigeaient partout, semblait les multiplier; ils commençaient à passer en plus grand nombre; on craignait que, selon leur usage, après avoir fait un désert d'une partie des contrées du Midi, ils ne finissent par s'y établir. Eudes, défait une fois par eux, s'adressa aux Francs eux-mêmes; une rencontre eut lieu près de Poitiers entre les rapides cavaliers de l'Afrique et les lourds bataillons des Francs (732). Les premiers, après avoir éprouvé qu'ils ne pouvaient rien contre un ennemi redoutable par sa force et sa masse, se retirèrent pendant la nuit. Quelle perte les Arabes purent-ils éprouver, c'est ce qu'on ne saurait dire. Cette rencontre solennelle des hommes du Nord et du Midi a frappé l'imagination des chroniqueurs de l'époque; ils ont supposé que ce choc de deux races n'avait pu avoir lieu qu'avec un immense massacre.—J. MICHELET : *Histoire de France.*

Pour moi, je chanterai le maître que j'adore,
Dans le bruit des cités, dans la paix des déserts,
Couché sur le rivage, ou flottant sur les mers,
Au déclin du soleil, au réveil de l'aurore.

La terre m'a crié : Qui donc est le Seigneur?
Celui dont l'âme immense est partout répandue,
Celui dont un seul pas mesure l'étendue,
Celui dont le soleil emprunte sa splendeur ;

Celui qui du néant a tiré la matière,
Celui qui sur le vide a fondé l'univers,
Celui qui sans rivage a renfermé les mers,
Celui qui d'un regard a lancé la lumière ;

Celui qui ne connaît ni jour, ni lendemain,
Celui qui de tout temps de soi-même s'enfante,
Qui vit dans l'avenir comme à l'heure présente,
Et rappelle les temps échappés de sa main.—LAMARTINE.

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Translate into French:—

The generous readiness with which hospitality is afforded to the stranger who asks for it, the facility with which he is allowed to contract the peculiar connexion of guest with his host, and the permanence with which that connexion, when created by partaking of the same food and exchanging presents, is maintained even through a long period of separation, and even transmitted from father to son—these are among the most captivating features of the heroic society. The Homeric chief welcomes the stranger who comes to ask shelter in his house, first gives him refreshment, and then inquires his name and the purpose of his voyage. Though not inclined to invite strangers to his house, he cannot repel them when they spontaneously enter it, craving a lodging. The suppliant is also commonly a stranger, but a stranger under peculiar circumstances.—GROTE: *History of Greece.*

GRAMMATICAL AND LITERARY QUESTIONS.

1. What is the difference with respect to meaning conveyed by verbs expressing *fear* when followed by *ne* and by *ne pas* in the *subordinate* clause? Exemplify the rule.

2. If instead of repeating *si*, it were replaced by *que*, should this *que* be followed by the subjunctive in a *co-ordinate* clause? Give examples.

3. What preposition or particle must be employed after *rien*, when followed by an adjective or a past participle in the *comparative* degree?

Translate: *Nothing* more sublime than ——. *Nothing* more detestable and detested than ——. Give besides some sentences of that description you may remember from authors.

4. Explain the elliptic construction: *plus de larmes, plus de soupirs, plus d'amitié sincère.*

5. How would you render *have* and *get* when followed by an *objective* case, and subsequently by a *past participle?*

Translate: Have you *had* your creditors arrested? Have you *got* your sheep shorn? Will you *get* the bill discounted for me? Has he *had* this house built for himself, or for his son-in-law?

6. Translate *idiomatically* in as many ways as it may be done:—This room is twenty feet long, fifteen feet wide, and eighteen feet high.

7. Give the idiomatical French *equivalent* for the preposition *by*, relative to dimension, *e.g.*, six feet *by* five, ten inches *by* nine.

8. Write out the present and imperfect subjunctive of the verbs aller, mourir, s'asseoir, valoir, vouloir, pouvoir, savoir, faire.

9. Define accurately by examples the distinct notions conveyed respectively by commencer *par*, commencer *à*, commencer *de*.

Would you say: l'enfant commence déjà *à* marcher, or *de* marcher? Assign a reason.

10. State, by examples, the difference between finir *par* and finir *de*.

11. We find "*de*" employed after "*pas*" relative to a *substantive-notion* in the plural, *e.g.*, "Il n'y avait pas *de* meilleurs hommes de cheval que les Egyptiens" (Bossuet). Why is the *article* after *pas* used in the following and the like examples:—*Il n'a pas* DES *idées bien orthodoxes,* DES *sentiments bien relevés?*

12. What tense is employed in French when a permanent state of a thing or condition is involved? Translate: *St. Augustine described the nature of God as a circle, the centre of which* WAS *everywhere, and the circumference nowhere.*

Give a brief biographical sketch of some of the principal French writers during the latter part of the sixteenth and the beginning of the seventeenth century.

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Translate into English :—

Wallenſteins Plan war Nichts weniger als Ruhe, da er in die Stille des Privatſtandes zurücktrat. Der Pomp eines Königs umgab ihn in dieſer Einſamkeit, und ſchien dem Urtheilsſpruch ſeiner Erniedrigung Hohn zu ſprechen. Sechs Pforten führten zu dem Pallaſte, den er in Prag bewohnte, und hundert Häuſer mußten niedergeriſſen werden, um dem Schloßhofe Raum zu machen. Aehnliche Palläſte wurden auf ſeinen übrigen zahlreichen Gütern erbaut. Kavaliere aus den edelſten Häuſern wetteiferten um die Ehre, ihn zu bedienen, und man ſah kaiſerliche Kammerherren den goldenen Schlüſſel zurückgeben, um bei Wallenſtein eben dieſes Amt zu bekleiden. Er hielt ſechzig Pagen, die von den trefflichſten Meiſtern unterrichtet wurden; ſein Vorzimmer wurde ſtets durch funfzig Trabanten bewacht. Seine gewöhnliche Tafel war nie unter hundert Gängen, ſein Haushofmeiſter eine vornehme Standesperſon. Reiſ'te er über Land, ſo wurde ihm Geräthe und Gefolge auf hundert ſechs- und vierſpännigen Wägen nachgefahren; in ſechzig Karroſſen mit funfzig Handpferden folgte ihm ſein Hof. Die Pracht der Livereien, der Glanz der Equipage und der Schmuck der Zimmer war dem übrigen Aufwande gemäß. Sechs Barone und eben ſo viele Ritter mußten beſtändig ſeine Perſon umgeben, um jeden Wink zu vollziehen;—zwölf Patrouillen die Runde um ſeinen Pallaſt machen, um jeden Lärm abzuhalten. Sein immer arbeitender Kopf brauchte Stille; kein Geraſſel der Wägen durfte ſeiner Wohnung nahe kommen, und die Straßen wurden nicht ſelten durch Ketten geſperrt. Stumm, wie die Zugänge zu ihm, war auch ſein Umgang. Finſter, verſchloſſen, unergründlich, ſparte er ſeine Worte mehr als ſeine Geſchenke, und das Wenige, was er ſprach, wurde mit einem widrigen Tone ausgeſtoßen. Er lachte niemals, und den Verführungen der Sinne widerſtand die Kälte ſeines Bluts. Immer geſchäftig und von großen Entwürfen bewegt, entſagte er allen leeren Zerſtreuungen, wodurch Andere das koſtbare Leben vergeuden. Einen durch ganz Europa ausgebreiteten Briefwechſel beſorgte er ſebſt; die meiſten Aufſätze ſchrieb er mit eigener Hand nieder, um der Verſchwiegenheit Anderer ſo wenig als möglich anzuvertrauen. Er war von großer Statur und hager, von gelblicher Geſichtsfarbe, röthlichen kurzen Haaren, kleinen aber funkelnden Augen. Ein furchtbarer, zurückſchreckender Ernſt ſaß auf ſeiner Stirn, und nur das Uebermaß ſeiner Belohnungen konnte die zitternde Schaar ſeiner Diener feſthalten.

Translate into German :—

THE NORTHMEN IN ICELAND.

The men who colonized Iceland towards the end of the ninth century of the Christian era were of no savage or servile race. They fled from the overbearing power of the king, from that new and strange doctrine of government put forth by Harold Fairhair, 860–933, which made them the king's men at all times, instead of his only at certain times for special service, which laid imposts and taxes on their lands, which interfered with vested rights and world-old laws, and allowed the monarch to meddle and make with the freemen's allodial holdings. As we look at it now, and from another point of view, we see that what to them was unbearable tyranny, was really a step in the great march of civilization and progress, and that the centralization and consolidation of the royal authority, according to Charlemagne's system, was in time to be a blessing to the kingdoms of the north. But to the freeman it was a curse. He fought against it as long as he could; worsted over and over again, he renewed the struggle; and at last, when the isolated efforts, which were the keystone of his edifice of liberty, were fruitless, he sullenly withdrew from the field, and left the land of his fathers, where, as he thought, no freeborn man could now care to live. Now it is that we hear of him in

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Iceland, where Ingolf was the first settler in the year 874, and was soon followed by many of his countrymen. Now, too, we hear of him in all lands. Now France, now Italy, now Spain, feel the fury of his wrath, and the weight of his arm. After a time, but not until nearly a century has passed, he spreads his wings for a wider flight, and takes service under the great emperor at Byzantium, or Micklegarth—the great city, the town of towns—and fights his foes from whatever quarter they come. The Moslem in Sicily and Asia, the Bulgarians and Sclavonians on the shores of the Black Sea and in Greece, well know the temper of the northern steel, which has forced many of their chosen champions to bite the dust. Wherever he goes the Northman leaves his mark, and to this day the lions of the Piræus are scored with runes which tell of his triumph.

QUESTIONS.

1. What is the general rule for the sequence of tenses? Is the present subjunctive ever found after the Imperfect Indicative? How has Becker stated the rule?

2. After what verbs is the verb in the consequent clause, introduced by daß, usually in the *indicative* mood?

3. What is the gender of substantives ending in keit, ſchaft, chen, niß, lein, ling?

4. Give the gender, the genitive singular, and nominative and dative plural of Gemüth, Zufluchtsort, Stadt, Leben, Schurke, Baum, Schnee, Funke, Beiſpiel.

5. Give the feminine forms of Herzog, König, Graf, Freund.

6. Translate accurately, Das Buch $\left\{\begin{matrix}\text{iſt}\\\text{wird}\end{matrix}\right\}$ gebunden; Die Thore der Stadt $\left\{\begin{matrix}\text{ſind}\\\text{werden}\end{matrix}\right\}$ des Nachts geſchloſſen.

7. Mention what particles are inseparable in compound verbs.

8. When must separable particles be placed at the end of their clause?

9. Give a list of prepositions which govern (1) the dative only, (2) the accusative only, (3) the accusative and dative.

10. Give a list of conjunctions introducing subordinate sentences under the following heads: (1) place, (2) time, (3) cause, (4) condition, (5) manner, (6) proportion, (7) concession. Illustrate by examples.

11. Mention some reflexive verbs that take a genitive after them, and frame sentences exemplifying each.

GERMAN LITERATURE.

1. What are the chief periods of German literature? Name the most celebrated writers in each, and their principal works.

2. Give a list of the principal works of Goethe and Schiller. State their respective characteristics as authors, and give a brief life of each.

3. Enumerate the chief historians and philologists of Germany. State when each flourished and what he wrote.

4. Explain the following terms: Minneſänger, Meiſterſänger, romantiſche Schule, Volksbücher.

5. State the respective periods relating to the Minneſänger and Meiſterſänger.

6. Name the authors of the following compositions: Des Sängers Fluch, Parcival, Kritik der reinen Vernunft, Der Meſſias, Schwertlied, Nathan der Weiſe; and give some account of each.

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SCIENCE SCHOLARSHIPS.—FIRST YEAR STUDENTS.

MATHEMATICS.—*Examiner, H. J. Sharpe, M.A.*

GEOMETRY AND TRIGONOMETRY.

1. The diagonals of a rhombus intersect at right angles. When and when only can a rhombus be inscribed in a circle?

2. When a circle can be inscribed in a rhomboid, the sum of two opposite sides is the same.

3. Draw a straight line touching two given circles.

4. $ABCD$ is a parallelogram, E the point of intersection of its diagonals and K any point in AD: if KB, KC be joined, show that the figure $BKEC$ is one-fourth of the parallelogram.

5. Describe the different measures of an angle, and if A be the number of degrees, G the number of grades, θ the circular measure of the same angle, show that

$$\frac{A}{90}=\frac{G}{100}=\frac{2\theta}{\pi}.$$

Find the number of degrees in the unit of circular measure.

6. Define the sine, cosine, and cosecant of an angle, and construct the angle whose cosine is $\sqrt{\frac{2}{3}}$.

Solve the equation $\sin^2\theta-2\cos\theta+\frac{1}{4}=0$.

7. Trace the changes in sign and magnitude of the tangent of an angle which increases from 0° to 360°.

8. Prove from a figure that $\sin(A+B)=\sin A\cos B+\cos A\sin B$, and assuming this to be true, whatever be the magnitudes of A and B, deduce the other similar formulæ.

9. Find the value of $\sin 15°$ and $\sin 75°$. Also prove that $\sin 3A=4\sin A\sin(60°-A)\sin(60°+A)$.

10. Show that in any plane triangle $\cos A=\frac{b^2+c^2-a^2}{2bc}$.

Hence deduce $\sin A$, and hence that the sines of the angles of a triangle are proportional to the opposite sides.

11. Find in terms of the sides the radius of the inscribed circle.

If r is the radius of the inscribed circle of a triangle whose sides are a, b, c; r_1, r_2, r_2 the distances of its centre from the angular points of the triangle, prove that

$$\frac{r_1r_2r_3}{abc}=\frac{r}{s}.$$

ALGEBRA.

1. Distinguish carefully between the algebraical and arithmetical term —Greatest Common Measure. Give the proof of the rule for finding the former, showing why in certain cases the work may be shortened.

Ex. Find the greatest common measure of $6x^3-6yx^2+2y^2x-2y^3$ and $12x^2-15yx+3y^2$.

2. Extract the fourth root of $\left(x^2+\frac{1}{x^2}\right)^2-4\left(x+\frac{1}{x}\right)^2+12$.

3. Find the condition that the following equations may have a root in common;

$$x^3+ax^2+bx+c=0;$$
$$x^3+\alpha x^2+\beta x+\gamma=0.$$

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4. Show that every quadratic has two, and only two, roots, and that if α and β are the roots of the quadratic $x^2-px+q=0$, then $\alpha+\beta=p$, $\alpha\beta=q$.

5. Assuming that the law $a^m \times a^n = a^{m+n}$ holds universally, whatever be m and n, investigate the meaning of such an expression as $\frac{p}{q}$. Reconcile it also with the generalization of $(a^m)^n = a^{mn}$.

6. Solve the equations

$$(1)\ 10x-\frac{14x-9}{8x-3}=\frac{18-40x^2}{3-4x}-9.$$

$$(2)\ y(x^2+y^2)=a\,(x+y)^2$$
$$xy=a\,(x+y).$$

$$(3)\ \frac{(x+a)(x+b)}{yz}=\frac{(y+a)(y+b)}{zx}=\frac{(z+a)(z+b)}{xy}=m.$$

7. Prove algebraically the geometrical operations, *alternando, componendo, dividendo*, and explain the terms *duplicate* and *triplicate ratio* and *continued proportion*.

If $a : b :: c : d$ prove that

$$a^2+b^2 : \frac{a^3}{a+b} :: c^2+d^2 : \frac{c^3}{c+d}$$

8. If S_n represent the sum of n terms of a given geometric series, find the sum of $S_1+S_2+S_3+\ldots\ldots+S_n$.

9. Define a logarithm. Enumerate the several advantages of a system calculated to base 10. Prove the fundamental properties of logarithms.

Given log 2=·3010300, log 3=·4771213, and log 131371=5·1173942, find the value of $\left(\frac{3}{2}\right)^{-\frac{2}{3}}$.

10. Find the exact times between one and two when the hour and minute hand of a clock are two minutes apart.

SECOND YEAR STUDENTS.

MATHEMATICS.—*Examiner, H. J. Sharpe, M.A.*

CONIC SECTIONS.

To be proved Geometrically.

1. Show that if the tangent at any point P of a conic be produced to meet the directrix in Z, PZ subtends a right angle at the focus. Hence show that in the ellipse the tangent makes equal angles with the focal distances.

2. Show that in the parabola the subtangent is bisected at the vertex, and that the subnormal is constant.

3. Prove the truth of the following method of finding any number of points on a conic. Through the focus draw to the directrix a straight line inclined at an angle $\cot^{-1}e$ to it. Through Q any point on this draw QN perpendicular to the axis, and with centre N and radius NQ describe a cutting the directrix in R. Parallels through R and S to the axis and NR intersect in a point P on the conic.

4. In an ellipse HP is joined, cutting the conjugate CD in E. Show that PE=the semi-major axis.

Appendix, No. 8.

Scholarship Examinations.

CO-ORDINATE GEOMETRY.

1. Define clearly the equation to a curve. How is the intersection of two curves indicated algebraically? Trace the loci of the equations $xy=0$, $x^2-2xy=0$, $x^2+y^2=0$, $x^3+y^3=0$.

2. Find the equation to a straight line in the form $y=mx+c$, and explain the geometrical meanings of m and c. Find the length of the perpendicular from $(x, y_,)$ on it.

3. Find the equation to the straight line drawn through the point $(x_1 y_1)$ parallel to $y=mx+c$.

4. What is the geometrical meaning of the condition for 3 points lying in a straight line?

5. Define *analytically* and find the equation to the tangent to a circle at a point $(x' \; y')$, the axes being at the centre.

DIFFERENTIAL CALCULUS.

1. Explain clearly what is meant by the differential coefficient of a function of one independent variable, and deduce at once the differential co-efficients of

$$ax^5, \; (1+x^2)^{\frac{3}{2}}, \; \cos x.$$

2. Differentiate $\log(x+\sqrt{1+x^2})$, x^x, $\sin^{-1}(\epsilon+{}^{x}\epsilon^{-x})$.

3. Explain the geometrical meaning of $\frac{dy}{dx}$, where x and y are the co-ordinates of a point on a curve.

ALGEBRA AND TRIGONOMETRY.

1. Give and prove the rule for finding the greatest common measure of two algebraical quantities, and find it for x^4-3x^2+2 and x^4+x^2-6.

2. Prove that

$$\frac{(a^2-b^2)^3+(b^2-c^2)^3+(c^2-a^2)^3}{(a-b)^3+(b-c)^3+(c-a)^3}=(a+b)(b+c)(c+a).$$

Solve the equations

$$(1) \quad \frac{mx-(a+b)}{nx-(c+d)}=\frac{mx-(a+c)}{nx-(b+d)}.$$

$$(2) \quad \left\{ \begin{matrix} x^2+xy+y^2=a^2 \\ x^4+x^2y^2+y^4=b^4 \end{matrix} \right\}$$

$$(3) \quad \frac{\sqrt{12x+1}+\sqrt{12x}}{\sqrt{12x+1}-\sqrt{12x}}=18.$$

3. Show how to rationalize a binomial surd. Simplify $\frac{\sqrt{18}}{\sqrt{3}+\sqrt{2}}+\frac{\sqrt{12}}{\sqrt{3}-\sqrt{2}}$ and extract the square root of $12-\sqrt{140}$.

4. Give the geometrical and algebraical definitions of proportion, and show that if four quantities be proportionals according to the geometrical they will also be so according to the algebraical definition. Which is the more comprehensive of the two?

5. Prove by induction or otherwise that $1^2+2^2+3^2+\ldots\ldots+n^2=\frac{(n+n1)(2n+1)}{1.2.3}$, and sum to n terms the series whose nth term is $2+(-1)^n n$.

6. Show how to form convergents to a continued fraction, and converge to $\frac{1559}{6672}$.

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Scholarship Examinations.

7. Find the $(r+1)$th term of the expansion of $\frac{1}{(1-x)^{\frac{m}{2}}}$ by the binomial theorem; and if $x=\frac{2}{3}$, find what two consecutive terms of the series are equal to one another.

8. Show that all angles which have the same tangent as a given angle are included in the formula $n\pi+a$.

Find the *general* value of θ when $\sin^2\theta=\sin^2\alpha$.

9. Prove the formula $\sin(\delta-\beta)\sin(\alpha-\gamma)+\sin(\beta-\gamma)\sin(\alpha-\delta)+\sin(\gamma-\delta)\sin(\alpha-\beta)=0$; also if $\alpha+\beta+\gamma=180^\circ$, that $\sin\alpha+\sin\beta+\sin\gamma=4\cos\frac{\alpha}{2}\cos\frac{\beta}{2}\cos\frac{\gamma}{2}$, and that the expression $\cot\alpha+\frac{\sin\alpha}{\sin\beta\sin\gamma}$ will retain the same value if any two of the quantities α, β, γ be interchanged.

10. Prove Demoivre's theorem for a positive integral index, and extend it to fractional and negative indices.

Rationalize

$$\frac{(A+B\sqrt{-1})^n}{(C+D\sqrt{-1})^m}+\frac{(A-B\sqrt{-1})^n}{(C-D\sqrt{-1})^m}.$$

11. Show that if θ be the circular measure of an angle less than a right angle, $\theta>\sin\theta>\theta-\frac{\theta^3}{4}$. Hence calculate roughly the value of $\sin 10''$.

12. Find the exponential values of sine and cosine of θ. Hence prove that $\theta=\tan\theta-\frac{1}{3}\tan^3\theta+\frac{1}{5}\tan^5\theta-$&c.

THIRD YEAR STUDENTS.

MATHEMATICS.—*Examiner, H. J. Sharpe, M.A.*

THEORY OF EQUATIONS, &c.

1. Show how to find the quotient and remainder when a rational algebraic function of x is divided by a binomial $x-a$.

Ex. Divide $x^5+x^3-11x^2+4x+4$ by $x-2$.

2. State and prove the relations existing between the roots of the equations $f(x)=0$ $f'(x)=0$.

If the roots of $f(x)=0$ are all real, those of $f(x)-kf'(x)=0$ are all real, where k is any constant.

3. If $a, b, c,$ be the roots of the equation $x^3-2x^2+2=0$, form the equation whose roots are $\frac{b^3+c^3}{a^3}$, $\frac{c^3+a^3}{b^3}$, $\frac{a^3+b^3}{c^3}$.

4. Show how to find by Newton's method of divisors the commensurable roots of an equation. Solve completely the equation $x^4-11x^2+14x-24=0$.

5. Enunciate and prove Descartes' rule of signs. Show that if $2t$ consecutive terms be wanting in an equation, there must be at least $2t$ imaginary roots.

6. Tangents are drawn to a parabola from a given point; find the equation to the chord of contact. If this latter always passes through a fixed point, the point of intersection of the two tangents travels on a fixed line.

7. Find the value of c in order that the line $y=mx+c$ may be a tangent to the curve $y^2-x^2=a^2$.

Determine the locus of points from which pairs of tangents may be drawn to this curve, so as to make a constant angle with each other.

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Scholarship Examinations.

8. Show that the *general* equation to a circle in trilinear co-ordinates must be of the form $a\beta\gamma+b\gamma\alpha+c\alpha\beta+(a\alpha+b\beta+c\gamma)(l\alpha+m\beta+n\gamma)=0$. Hence find the equation to the circle which passes through the centres of the described circles.

9. Prove the principal properties of the polar triangle. Hence show that the three angles of any spherical triangle are together greater than two and less than six right angles.

10. Prove from a figure the formulæ $\frac{\sin A}{\sin a}=\frac{\sin B}{\sin b}=\frac{\sin C}{\sin c}$.

In an equilateral triangle, prove that $2\cos\frac{a}{2}\sin\frac{A}{2}=1$.

DIFFERENTIAL CALCULUS, &c.

1. Show that $\text{lt}_{x=\infty}\left(1+\frac{1}{x}\right)^x$ lies between 2 and 3. Also show this by taking logarithms, &c.

Find the value of $(\text{cosec}\,x)^{2\tan^2 x}$ as x approaches $\frac{\pi}{2}$.

2. Give a method of finding the differential coefficient of x^n where n is unrestricted.

3. If y is a function of z, and z is a function of x, show clearly that $\frac{dy}{dx}=\frac{dy}{dz}\frac{dz}{dx}$.

4. Prove Maclaurin's theorem without assuming Taylor's. Explain how to apply it to expand y in ascending powers of x from the equation $\phi(x,y)=0$.

5. Show how the maxima or minima values of a function of one independent variable may be determined. Find the greatest rectangle, having its sides parallel to the axes, that can be inscribed in the curve

$$(ax)^{\frac{2n}{2n+1}}+(by)^{\frac{2n}{2n+1}}=c^{\frac{4n}{2n+1}}.$$

6. If ϕ be the angle between the radius vector and the tangent to a curve, prove that $\tan\phi=\frac{rd\theta}{dr}$. Hence find the polar equation to the tangent at any point in a curve. Find the locus of the foot of the perpendicular from the origin on the tangent of the curve $r=a(1+\cos\theta)$.

7. Show how to find the envelope of the system of curves defined by $f(x, y, \theta)=0$, θ being a variable parameter.

Find the points of intersection of two infinitely close ellipses of the series defined by $\frac{x^2}{\alpha^2}+\frac{y^2}{\beta^2}=1$, where α and β are variable, but $\alpha^2+\beta^2=c^2$ a constant.

8. Explain clearly the meaning and use of integration.

Exhibit $\int_a^b \phi(x)$ as the limit of the sum of a series.

Integrate $\frac{x^2-1}{x^2-4}$, $\frac{x^2-1}{x^4+x^2+1}$, and find the limit where n is infinite, of $\frac{1}{n}+\frac{1}{\sqrt{n^2-1}}=\frac{1}{\sqrt{n^2-2^2}}+\ldots\ldots+\frac{1}{\sqrt{n^2-(n-1)^2\}}}$.

9. Explain the method of finding the lengths and areas of curves.

Ex. Find the area of a loop of the curve $16a^4y^2=b^2x^2(a^2-2ax)$, as also the whole area of the ellipse $ax^2+2bxy+cy^2=1$.

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10. Prove that the only necessary and sufficient condition that $Mdx+Ndy=0$ should be a complete differential is $\frac{dM}{dy}=\frac{dN}{dx}$.

11. Explain the method of separation of symbols as applied to the solution of differential equations, and solve the following:

$$\left(\frac{d}{dx}+a\right)^2\left(\frac{d}{dx}-a\right)y=\cos(mx+a)$$

$$\left.\begin{aligned} a\frac{dx}{dt}+b\frac{dy}{dt}&=mx \\ b\frac{dx}{dt}+a\frac{dy}{dt}&=ny \end{aligned}\right\}$$

$$\frac{d^4y}{dx^4}+n^2\frac{d^2y}{dx^2}=\cos nx.$$

NATURAL PHILOSOPHY.—*Examiner, Dr. Stevelly.*

1. Enunciate distinctly the propositions which constitute the successive steps of Duchayla's proof of the composition of forces, without going through the proof of any step except the last, and give it in full.

2. Three forces, P, Q, R, equilibrate, acting at the same point of a body, their directions making respectively the angles $(\hat{PQ})$, $(\hat{PR})$, and $(\hat{QR})$ with each other, prove that

$$P : Q : R :: \sin(\hat{QR}) : \sin(\hat{PR}) : \sin(\hat{PQ}).$$

3. In the last question, given the directions and magnitudes of P and Q respectively, find (1) the magnitude, (2) the direction of R.

4. Three forces, P, Q, and R, acting at the same point of a body equilibrate, show that $\sin(\hat{PQ})=$

$$\sqrt{\frac{(P+Q+R)(P+Q-R)(P+R-Q)(R+Q-P)}{2P.Q}}$$

5. Two couples act in the same or parallel planes in opposite directions, or one positive, the other negative: the constituent forces of the one are each equal P, and its arm is p; the constituent forces of the other are each equal Q, and its arm is q; show that if $P.p=Q.q$ these couples are in equilibrio.

6. If a heavy particle be made to oscillate in a cycloid whose axis is vertical, show that the time of an oscillation is denoted by $\pi\sqrt{\frac{l}{g}}$; π being the ratio of the circumference to the diameter of a circle, l the length of the pendulum (or semicycloid), and g the force of gravity at that place.

7. If a body move round in a circle whose radius is r, with a uniform velocity, completing its circuit in the time P; prove that the force with which at each instant it endeavours to recede from the centre is expressed by $\frac{4\pi^2 r}{P^2}$.

8. Show that the part of the centrifugal force, arising from the diurnal rotation, on the surface of the earth, supposed to be a sphere, which directly opposes gravity, is proportional to the square of the cosine of the latitude of the place of observation.

9. Explain the nature of the effect produced by that part of the centrifugal force which is perpendicular to the radius of the earth (or the direction of gravity on the supposition of sphericity), and investigate the law of its variation with the latitude of the place.

10. State and prove the law of the variation of the parallax of the moon, a planet, or any other celestial object near enough to have parallax, during the observed part of its diurnal course.

11. Describe and explain the direct stationary and retrograde apparent motions of the planets, (1) inferior, (2) superior.

12. Describe the monthly phases of the moon; explain their causes, and state (1) the exact, (2) the approximate, angular measure of the greatest breadth of the illuminated and visible portion of her surface.

13. State the conditions required in order that a heavy body may float in equilibrio on a heavy fluid, and state and explain what determines whether the equilibrium will be stable, unstable, or neutral.

14. Suppose the specific gravity of pure copper to be 8·879 to distilled water at the standard temperature = 1, calculate the weight in grains of one cubic inch of such copper.

15. Prove that no curvature (or capillary disturbance) of the surface of a liquid would occur, if a raised coherent plate were placed vertically in it, which attracted the particles of the liquid with exactly one-half the force that an equal volume of the liquid would exert on one of its own particles.

16. Explain the cause of the great accumulation of quantity of electricity in the Leyden Jar, beyond that which the same electrical machine could accumulate on a mere insulated conductor having the same surface as the coating of the jar.

17. Describe and explain the experiments by which Snow Harris proved that the quantities of electricity accumulated on a given surface were proportional to the square roots of the forces they exerted on another given surface placed at a given distance from the charged surface.

18. Describe and explain the experimental means by which Fizeau determined the velocity of artificial light at the earth's surface.

LOGIC.—*Examiner, Rev. Dr. M'Cosh.*

1. In what relation does Logic stand to Psychology and to Grammar? Wherein does it differ from them? How far is Logic conversant about language?

2. What are the principal incidental disadvantages of language, considered as an instrument of thought? How does ambiguity of language affect reasoning? What are the remedies for these evils?

3. "It is hopeless to master all knowledge." What is the subject and predicate, what the quantity and quality of this proposition? Interpret it both as to the extension and comprehension of the terms. Convert it, and put it in the various forms of opposition.

4. What is the precise nature of the general concrete notion? Give an example, and show how it admits of higher and lower generalization, and how every such notion must have both extension and comprehension. Has an abstract notion extension and comprehension?

5. When Columbus was in search of the new world he fell in with a flock of birds, and concluded that he could not be far from land. Was there reasoning in this process? If so, put it in syllogistic form, indicating the mood and figure.

6. "No branch of science has reached perfection; all branches of science deserve to be cultivated." What conclusion can be drawn from these

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Scholarship Examinations.

premises? Indicate the mood and figure. What is the special rule for the conclusion in that figure, and what the reason of the rule? Reduce the syllogism.

7. Define a conditional proposition. What is conditional reasoning? Does it differ essentially from categorical? Examine the following, designating the parts: "This world would be a happy one if men were all good: but men are not good, and so our world is not a happy one." Can you put this in categorical form?

8. What is the fallacy of "indirect assumption?" Say under what division and subdivision of fallacies it falls, and explain the nature of the division and subdivision. How is such an assumption apt to prove more fallacious than a direct assertion?

9. Why is an induction of facts necessary in order to the prosecution of physical science, while it is not so in such sciences as mathematics?

10. Is there anything more than a collection of facts in the inductive process? If so, specify what else there is. Is there inference? If so, where does it come in? How can the inference be stated in syllogistic form?

11. What is meant by "phenomenon?" What by the "explanation" of a phenomenon? What by "laws of nature?" What explanation is sought for in natural history? What in natural philosophy? What in chemistry?

12. Leverrier and Adams argued the existence of a new planet (Neptune) from the perturbations of Uranus. What "canon of induction" would justify the inference? Enunciate the "canon," and show that it applies.

13. Define analogy. What is meant by the argument from analogy? Into what errors are we liable to fall in analogical reasoning? In what effective way may an answer to objections be furnished by analogy?

14. What is the teleological argument in physiology? What in natural theology? How can they be reduced to syllogistic form?

Engineering Scholarships.—Second Year Students.

Geometrical Drawing.—*Examiner, Professor James Thomson.*

The Examination comprised questions in Descriptive Geometry, Isometrical Drawing, Perspective and Mechanical Drawing.

Experimental Physics.—*Examiner, Dr. Stevelly.*

1. Three forces, P, Q, R, equilibrate, acting at the same point of a body, their directions making respectively the angles $(\widehat{PQ})$, $(\widehat{PR})$, and $(\widehat{QR})$ with each other, prove that

$$P : Q : R :: \sin(\widehat{QR}) : \sin(\widehat{PR}) : \sin(\widehat{PQ})$$

2. In the last question, given the directions and magnitudes of P and Q respectively, find (1) the magnitude, (2) the direction of R.

3. State accurately the law which governs the relation of two forces which equilibrate on a lever; and give either the geometrical or experimental proof of its truth. State also how the pressure on the fulcrum, in that or any other case of forces equilibrating on a lever, is determined.

4. The sluice of a mill-pond resists being opened with a force of 15 cwt. It is worked by a rack-and-pinion, the winch handle has a radius of 20 inches, and the pinion a radius of $2\frac{1}{2}$ inches; find the number of pounds of force just required to be exerted on the winch handle to equilibrate that resistance of the sluice.

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5. Does a machine enable a man, or other agent, to perform more work in a given time than his unaided strength could accomplish? Explain the aid a machine does truly give him (1) statically, (2) dynamically.

6. Explain what is meant when it is asserted that the dynamic force of gravity at London is 32·1908: and explain what fact is required to be experimentally determined in order to find the dynamic force of gravity at any given place.

7. Prove that the velocity acquired by a heavy body in descending any curved or inclined course, without friction or other resistance, is the same as that a heavy body would acquire in falling freely through the same vertical height as that of the course.

8. State the conditions required in order that a heavy body may float in equilibrio on a heavy fluid, and state and explain what determines whether the equilibrium will be stable, unstable, or neutral.

9. Suppose the specific gravity of pure copper to be 8·879 to distilled water at the standard temperature = 1, calculate the weight in grains of one cubic inch of such copper.

10. Prove that no curvature (or capillary disturbance) of the surface of a liquid would occur, if a raised coherent plate were placed vertically in it, which attracted the particles of the liquid with exactly one-half the force that an equal volume of the liquid would exert on one of its own particles.

11. Explain how the specific gravity of a gas is determined, (1) with respect to standard water as unity, (2) with respect to standard atmospheric air as unity.

12. State accurately the law discovered by Dalton and Gay-Lussac, which connects the changes of temperature and volume of gases: state the corrections and coefficients as determined by the researches of Rudberg and Regnault, and point out the features which distinguish the law of Dalton from the law of Boyle or Marriotte.

13. Describe and explain the experiment by which Gay-Lussac determined the specific gravity of atmospheric steam.

14. Explain the cause of the great accumulation of quantity of electricity in the Leyden jar, beyond that which the same electrical machine could accumulate on a mere insulated conductor having the same surface as the coating of the jar.

15. Describe and explain the experiments by which Snow Harris proved that the quantities of electricity accumulated on a given surface were proportional to the square roots of the forces they exerted on another given surface placed at a given distance from the charged surface.

16. Describe the experiments by which Coulomb determined the law of magnetic attraction at different distances by comparing the number of vibrations a magnetic needle made in a given time when under the influence of the earth's magnetism alone, with those which it made when that influence was modified by that of another magnet placed at various distances; and show how the law was deduced.

17. When the vertical plane, in which a dipping needle is permitted to move freely, is placed at right angles to the magnetic meridian of the place of observation, the needle is found to stand vertically: explain the reason of this.

CHEMISTRY.—*Examiner, Dr. Andrews.*

1. Explain the meaning of the terms convection and conduction of heat; and state the experimental proofs of water being a bad conductor.

2. How is the *absolute* expansion of mercury determined; and when the

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Scholarship Examinations.

coefficient expressing that expansion is known, by what simple experiment can you determine the absolute expansion of glass between 0° and 100° C?

3. The latent heat of water is most accurately ascertained by observing the diminution of temperature which occurs when a weighed mass of ice is melted in a given quantity of water; describe fully the experiment, and the method of deducing from it the latent heat of water.

4. The atomic weights of copper, lead, and mercury being 32, 104, and 100 respectively, and the specific heat of copper 0·095, calculate, according to the law of Dulong and Petit, the specific heats of lead and mercury.

5. Contrast the appearances presented by the solar spectrum with the spectra produced by the metals sodium and lithium, or their salts.

6. State the composition and describe the methods of analyzing atmospheric air.

7. What is the action of a series of electrical sparks on ammoniacal gas? and show how the density of this gas may be calculated from this experiment, the densities of hydrogen and nitrogen being known (0·0692 and 0·9722).

8. Give an account of the preparation and chief properties of phosphoric acid.

9. Name C_2NH and describe its properties and tests.

10. What are the sources of light carburetted hydrogen; how is it prepared artificially? State also how many volumes of oxygen are required for its complete combustion, and how many volumes of carbonic acid and of aqueous vapour are formed.

11. Describe the preparation and properties of carbonic oxide.

12. What are the characteristic tests of potash and soda?

13. How is aluminium prepared, and what are its properties?

14. State the composition of common alum. Give also the formulas for the other alums of analogous composition.

15. Describe the method of separating silica from a siliceous mineral which is not attacked by acids.

16. Describe fully the methods of converting the protosalts of iron into sesquisalts.

17. Give an account of the method of taking the density of a vapour, and show how the density will serve to control the results of analysis.

18. How is the amount of nitrogen in an organic body determined?

19. What is the composition of tartaric acid; its relations to racemic acid; and how is it prepared artificially?

20. Give some account of uric acid, and of the more important products of its oxidation.

21. Mention the principal acids of the form $C_{2n}H_{2n}O_4$ and state their relations to the alcohols.

22. What relation has been observed in certain organic bodies between their boiling points and atomic constitution?

[*Examination in Mathematics with Arts Students.*]

MEDICAL SCHOLARSHIPS.

ANATOMY AND PHYSIOLOGY.—*Examiner, Dr. Redfern.*

SECOND YEAR.

1. Describe the characters of the surfaces, articulations, processes, and markings, of the lower two inches of the length of the radius, and state what structures are attached to this portion of the bone, and what lie upon it, indicating the part with which each structure is in relation.

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2. State the anatomical characters of the following ligaments, including their connexions and uses:—the calcaneo-scaphoid, the orbicular and the external lateral of the elbow joint, the capsular of the hip joint, the transverse of the atlas, and the costo-vertebral.

3. Define the terms elasticity, contractility, sensibility, and sensation, and state generally the microscopical and the chief chemical characteristics of the animal tissues which possess those properties.

THIRD YEAR.

1. Name and characterize the several articulations of the following bones and parts of bones, describing the shape, extent, position, and other characters of each articular portion:—the great wing of the sphenoid, the petrous portion of the temporal, the lamella plana of the ethmoid, the semilunar, the unciform, the second metacarpal, the middle cuneiform, and the fourth metatarsal.

2. State what movements occur at the hip and at the first carpo-metacarpal joints, and what muscles produce them respectively. What part of these movements can each muscle produce when acting singly?

3. Describe the structure of a hair and its follicle; also the processes of development, nutrition, death, and reproduction of a hair.

SENIOR SCHOLARSHIPS.

IN MODERN HISTORY.—*Examiner, Professor Craik.*

1. Connect into a rapid but clear narrative, giving as many dates as you can, the assembling of the Long Parliament, the breaking out of the Civil War, the death of the King, the death of Cromwell, the Restoration, the death of Charles the Second, the Revolution, the death of Queen Mary, of King William, of Queen Anne, of George I., and of George II.

2. What does Hallam describe the state of the two parties to have been in the war between Charles I. and the Parliament, at the beginning of September, 1643?

3. Give a short account, with dates, of the battles of Edgehill, Naseby, Marston Moor, Preston, Dunbar, and Worcester.

4. Explain the position which Cromwell held in the Government, according to each of the two successive Constitutions by which he was recognised as chief of the State.

5. Give an account of Algernon Sidney, embracing his trial and execution.

6. State the principal questions that have been agitated since the Restoration on Parliamentary impeachments, with the determination that each has received.

7. Give an account of the origin and first application of the party designations of *Whig* and *Tory.*

8. Relate the succession of the Parliaments of Charles II. and James II.

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1. State shortly who the following personages were:—Queen Henrietta Maria; Catherine, Queen of Charles II.; Mary, Queen of James II.; Mary, wife of William II. of Orange; Henrietta Maria, Duchess of Orleans; Anne, Duchess of York; Prince George of Denmark, Prince Rupert, the Duke of Monmouth, Lord Strafford, Lord Stafford, Lord Russell, and Father Petre.

2. Give a short account, with dates, of the following events:—The attempt of the King to seize the five members; the expulsion of the Presbyterian members; Colonel Pride's purification; the dismissal of the Rump by Cromwell.

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3. Compare the government of Charles II. in respect of its constitutional or unconstitutional character with that of his father.

4. State what it is in which Hallam holds the real significance and value of the Revolution to consist.

5. Give the names of the seven who signed the invitation to the Prince of Orange.

6. Explain what is meant by the Appropriation of the Supplies, and give the history of that matter.

7. Sketch the history of Standing Armies in England to the end of the reign of William III.

8. Give an account of the Triennial Act of the Long Parliament, of that of the reign of Charles II., and of that of the reign of William III., and also of the Septennial Act.

9. Give the dates of the Treaties of Westphalia, of the Pyrenees, of Aix-la-Chapelle (16—), of Nimeguen, of Ryswick, and of Utrecht; of the Triple Alliance (16—), and of the two Partition Treaties; and of the commencement and termination of the several Dutch wars in the times of Cromwell and of Charles II.

IN MODERN LANGUAGES.—*Examiner, Dr. Frädersdorff.*

I.—Translate into English :—

Que signifie ce nom de *Slave,—Slove* dans l'ancien idiome russe, *Sclave* dans les écrivains grecs et romains?—(Le premier annaliste des Russes, Nestor, appelle *Slovènes* les peuples que les Grecs et les Romains appelèrent *Sclavènes* et *Sclavines*). La vanité nationale le tire du mot *slava*, qui veut dire *gloire;* mais ce mot lui-même dérive de *slovo*, parole, comme en latin *fama* (la renommée) dérive de *fari* (parler). La gloire, c'est la parole du genre humain sur un héros ou sur un peuple. L'interprétation la plus sensée du nom de *Slave* or *Slove*, est donc *celui qui a la parole*, qui parle l'idiome national de la race, et, par une corrélation de termes qui justifie cette interprétation, l'étranger est *celui qui ne parle pas*, NIEMME, littéralement *le muet*. La langue est le moyen de reconnaissance du Slave; c'est par elle que le sentiment de la fraternité se maintient entre toutes les fractions de la race, quelles que soient les diversités de vie sociale ou de condition politique. Telle cette race se montre à nous aujourd'hui depuis la Dalmatie jusqu'aux régions polaires, telle aussi nous l'entrevoyons dès l'aurore de sa résurrection à la liberté. Elle se divisait alors en trois grandes branches, partagées à leur tour en confédérations et tribus. A l'est et sur les fleuves qui descendent dans la Mer-Noire était le rameau des Antes dont j'ai parlé tout à l'heure, et qui avait pour voisins les peuples finnois et asiatiques. A l'ouest se trouvait la branche des Vénètes ou Vendes, qui, appuyés sur la Baltique, confinaient au nord avec les Finnois d'Europe, au midi avec les Germains: ce rameau Slave avait été connu de bonne heure par les navigateurs grecs et les voyageurs romains.

Durant les tristes années qui fermèrent le cinquième siècle et ouvrirent le sixième, les provinces voisines du Danube purent étudier à leurs dépens toutes les variétés de la férocité humaine, car les races barbares qui les dévastaient avaient chacune sa façon particulière de torturer et de détruire. On connaissait les procédés du Hun d'Europe, issu des bandes d'Attila, et, comme je l'ai dit, celui-là était presque civilisé à côté de ses compagnons; mais le Slave et le Bulgare joignaient à des cruautés inconnues le supplice de l'épouvante. Le Slave, ennemi invisible et toujours présent, tapi derrière toutes les broussailles, caché jusque dans les rivières, attendait la nuit pour faire ses surprises; il fondait alors sur une ville, sur un village, sur une troupe en marche, et là où il avait passé, il ne restait plus âme vivante.—AMEDEE THIERRY.

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ODE A LORD BYRON.

Toi dont le monde encore ignore le vrai nom,
Esprit mystérieux, mortel, ange ou démon,
Qui que tu sois, Byron, bon ou fatal génie,
J'aime de tes concerts la sauvage harmonie,
Comme j'aime le bruit de la foudre et des vents
Se mêlant dans l'orage à la voix des torrents!
La nuit est ton séjour, l'horreur est ton domaine :
L'aigle, roi des déserts, dédaigne ainsi la plaine,
Il ne veut, comme toi, que des rocs escarpés
Que l'hiver a blanchis, que la foudre a frappés;
Des rivages couverts des débris du naufrage,
Ou des champs tout noircis des restes du carnage;
Et, tandis que l'oiseau qui chante ses douleurs,
Bâtit au bord des eaux son nid parmi les fleurs.
Lui des sommets d'Athos franchit l'horrible cime,
Suspend aux flancs des monts son aire sur l'abîme,
Et là, seul, entouré de membres palpitants,
Trouvant sa volupté dans les cris de sa proie,
Bercé par la tempête, il s'endort dans la joie.

LAMARTINE.

Translate into French :—

The island of Cyprus, so choicely situated as an emporium and station for the commerce of the Mediterranean, was a spot on which both the Genoese and Venetians had cast for some time a greedy and longing eye; and the equipoise established by the reciprocal jealousy which was entertained of such an acquisition by the rival powers, had alone, perhaps, arrested the downfall of the feeble dynasty of the Lusignani. The trading entrepôts formed by the emulous commonwealths at Nicosia and Famagosta, the two capitals of this tiny monarchy, enjoyed approximately similar privileges; but it was rarely that the reigning king was sufficiently strong or sufficiently judicious to refrain from patronizing one settlement in preference to the other. The predilections of the late prince, Peter I., had been Genoese; and throughout his reign, more especially towards its close, the Genoese factory obtained a marked ascendancy on the island. At his decease, however, the crown devolved upon a minor, who fell under the tutelage of his uncles; and the latter at once betrayed an equally decided bias to the Venetians.—HAZLITT: *History of the Venetian Republic.*

II.—Translate into French or German :—

History often appears to be a record of the acts of individuals, and this not necessarily from an inadequate conception of the historian. There are eras, in highly advanced as well as in primitive stages of civilization, when individual force, genius, and ambition, are the main moving powers of events. To understand the will of some great man, is to understand the secret of the times. The era of the Peloponnesian war appears in marked contrast with such epochs. Probably at no other time has national life been so powerful. In Athens the collective force of the State, during the greater part of the war, was paramount in its ascendancy over individual influence. Their strong feeling of equal citizenship rendered the Athenians especially jealous of the rise of great men among them. There was, indeed, one partial exception to this jealous hindrance of individual superiority during the first years of the war, when Pericles guided the policy of the State. But after his death, though there were many eminent men, there was none of force sufficient to exercise entire sway over events.

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III.—Translate into French :—

Fu Lodovico Sforza condotto a Liono, dove allora era il Re, ed introdotto in quella Città in sul mezzo dì, concorrendo infinita moltitudine a vedere un Principe poco innanzi di tanta grandezza e maestà, e per la sua felicità invidiato da molti, ora caduto in tanta miseria. Donde, non ottenuta grazia d' essere, come sommamente desiderava, intromesso al cospetto del Re, dopo due dì fu menato nella Torre di Locces, nella quale stette circa dieci anni, ed insino alla fine della vita prigione; rinchiudendosi in una angusta carcere i pensieri e l' ambizione di colui, che prima appena capivano i termini di tutta Italia. Principe certamente eccellentissimo per eloquenza, per ingegno e per molti ornamenti dell' animo, e della natura, e degno d' ottenere nome di mansueto e di clemente, se non avessei mbrattata questa laude l' infamia per la morte del nipote; ma da altra parte d' ingegno vano, e pieno di pensieri inquieti e ambiziosi, e disprezzatore delle sue promesse e della sua fede, e tanto presumendo del sapere di sè medesimo, che ricevendo somma molestia, che e' fosse celebrata la prudenza e il consiglio degli altri, si persuadesse di potere con l' industria e arti sue volgere dovunque gli paresse i concetti di ciascuno.—*Guicciardini.*

PHILOLOGICAL AND LITERARY QUESTIONS.

1. An old French form for *acheteur* is *achapteur*;—show on principles of comparative philology, involving the Northern and Teutonic dialects, that the constituent factor "*Chap*," containing the root of this word, is identical with German *Kauf*, Dutch *Koop*, Danish *Köb*, English *Cheap*.

2. Describe:—*a*. The oldest document in the literature of France.—State the date of that document; its special tenor and its linguistic character. *b*. The oldest document in German literature; state (as above) particulars respecting time, tendency (whether political or religious?), and its characteristic, *linguistically* speaking; c. Trace the *outer* history of the latter document. To which University has it been ultimately transferred, and under what historical circumstances?

3. Distinguish between *Trouvères* and *Troubadours*, also between *Meistersänger* and *Minnesänger*. Trace the relation (if any) between the just-mentioned *French* and *German* writers *respectively*; refer to time, tenor, and tendency, as regards *both* classes.

4. Dwell at some length (by way of an *original French composition*) on the historian Froissart, and compare him approximately, 1, with a modern *English* writer, *stylistically*, or relative to *descriptive* qualities; 2, with an *old* English writer in a purely *linguistic* point of view (i.e., relative to the periodical stage of the language *as such*).

[Other questions on comparative philology, and relating to subsequent later epochs in the literature of France formed a subject of *viva voce* examination.]

Translate into English :—

Das Edelſte, was wir beſitzen, haben wir nicht von uns ſelbſt; unſer Verſtand mit ſeinen Kräften, die Form, in welcher wir denken, handeln, und ſind, iſt auf uns gleichſam herabgeerbet. Wir denken in einer Sprache, die unſere Vorfahren erfanden, in einer Gedankenweiſe, an der ſo viele Geiſter bildeten und formten, zu der auch in andern Sprachen die ſchönſten Genien des Menſchengeſchlechts beitrugen und uns damit den edelſten Theil ihres Daſeins, ihr innerſtes Gemüth, ihre erworbenen Gedankenſchätze huldreich vermachten. Täglich genießen und gebrauchen wir tauſend Erfindungen, die aus alten Zeiten, ja zum Theil von den fernſten Gegenden der Erde zu uns gekommen ſind, und ohne die wir ein freudenloſes, dürftiges Leben führen müßten. Maximen und

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Sitten ſind auf uns geerbt, die nicht nur das Geſetz der Natur, das dunkel in uns liegt, erhellen, ſondern uns auch erwärmen und Kraft geben, uns über Bedrückniß und Gewohnheit hinaufzuſchwingen, Vorurtheile abzuſchütteln, und indem wir andere Gemüther von demſelben Lichte des Wahren, Guten und Schönen durchdrungen fühlen, uns mit ihnen in Freundſchaft und Thätigkeit weit inniger zu vereinigen, als geiſt und ſinnloſe Körper ſich je vereinigen konnten. Dieſe Kette von Wirkungen iſt zu uns gelangt, ſie hat uns umfaßt und umſchlungen; wider Willen müßen wir an ihr halten und im Guten oder Böſen thätig oder hindernd, auf Welt und Nachwelt fortwirken. Dies iſt das unſichtbare, verborgene Medium, das Geiſter durch Gedanken, Herzen durch Neigungen und Triebe, die Sinne durch Eindrücke und Formen, bürgerliche Geſellſchaften durch Geſetze und Anſtalten, Geſchlechter durch Beiſpiele, Lebensweiſe und Erziehung, Liebende durch Liebe, Freunde durch harmoniſche Freundſchaft knüpft.—*Herder: "Von der menschlichen Unsterblichkeit."*

Mignon.

Kennſt du das Land? wo die Citronen blühn,
Im dunkeln Laub die Gold-Orangen glühn,
Ein ſanfter Wind vom blauen Himmel weht,
Die Myrte ſtill und hoch der Lorbeer ſteht,
Kennſt du es wohl?
Dahin! dahin!
Möcht' ich mit dir, o mein Geliebter, ziehn.

Kennſt du das Haus? Auf Säulen ruht ſein Dach
Es glänzt der Saal, es ſchimmert das Gemach,
Und Marmorbilder ſtehn und ſehn mich an,
Was hat man dir du armes Kind, gethan?
Kennſt du es wohl?
Dahin! dahin!
Möcht' ich mit dir, o mein Beſchützer, ziehn.

Kennſt du den Berg, und ſeinen Wolkenſteg?
Das Maulthier ſucht im Nebel ſeinen Weg:
In Höhlen wohnt der Drachen alte Brut:
Es ſtürzt der Fels, und über ihn die Fluth.
Kennſt du ihn wohl?
Dahin! dahin!
Geht unſer Weg! o Vater, laß uns ziehn!

Translate into German—

As early as the eighth century, in the troubled reign of the Iconoclasts, Greece, and even Peloponnesus were overrun by some Sclavonian bands, who outstripped the royal standard of Bulgaria. The strangers of old, Cadmus, and Danaus, and Pelops, had planted in that fruitful soil the seeds of policy and learning; but the savages of the North eradicated what yet remained of their sickly and withered roots. In this irruption the country and the inhabitants were transformed; the Grecian blood was contaminated; and the proudest nobles of Peloponnesus were branded with the names of foreigners and slaves. By the diligence of succeeding princes, the land was in some measure purified from the barbarians; and the humble remnant was bound by an oath of obedience, tribute, and military service, which they often renewed and often violated. The siege of Patras was formed by a singular concurrence of the Sclavonians of Peloponnesus and the Saracens of Africa. In their last distress, a pious fiction of the approach of the praetor of Corinth revived the courage of the citizens.

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Their sally was bold and successful; the strangers embarked, the rebels submitted, and the glory of the day was ascribed to a phantom or a stranger, who fought in the foremost ranks under the character of St. Andrew the Apostle. The shrine which contained his relics was decorated with the trophies of victory, and the captive race was for ever devoted to the service and vassalage of the Metropolitan Church of Patras.—*Gibbon's Decline and Fall of the Roman Empire.*

QUESTIONS ON THE HISTORY OF GERMAN LITERATURE.

1. Describe the influence which Charlemagne exercised on the literature of Germany, and state the best sources from which we may derive our information on the subject.
2. Give the names of some of the contemporaries of Luther, and describe the works by which they gained a place in the history of German literature.
3. State what you know of Sebastian Brant, Johann Fischart, and Opitz.
4. Give an account of the controversy between Gottsched and Bodmer.
5. Give a short outline of the history of German literature from Gottsched to Goethe.
6. Describe the influence which Leibnitz exercised on the literature of Germany.

IN MATHEMATICS.—*Examiner, H. J. Sharpe, M.A.*

1. Show that the equation of the asymptotes of the conic $l\alpha^2+m\beta^2+u\gamma^2=0$ is $(l\alpha^2+m\beta^2+u\gamma^2)\left(\frac{a^2}{l}+\frac{b^2}{m}+\frac{c^2}{n}\right)=(a\alpha+b\beta+c\gamma)^2$.

2. A tangent to an ellipse at a point P intersects a fixed tangent in T; if a line be drawn through the focus S perpendicular to ST to meet PT in Q, the locus of Q is a straight line touching the ellipse.

3. Prove that a root of the equation $x-\epsilon^{ax}=0$ is

$$1+\frac{2a}{\underline{|2}}+\frac{3^2a^2}{\underline{|3}}+\frac{4^3a^3}{\underline{|4}}+\ldots\ldots\ldots\ldots$$

4. If two roofs whose ridges are at right angles to each other make angles α and β with the horizon, the angle θ which their intersection makes with it is given by

$$\cot^2\theta=\cot^2\alpha+\cot^2\beta.$$

5. If $y=z+x\phi(y)$ where z and x are independent, find the expansion of $f(y)$ in ascending powers of x.

Ex. If $y=z+x\sin y$ expand $\cos y$ in powers of x.

6. If $u=f(x, y, z)$, $r=y^2+z^2$, $s=z^2+x^2$, $t=x^2+y^2$, change the variables to r, s, t in the equation

$$x^2\frac{d^2u}{dx^2}+y^2\frac{d^2u}{dy^2}+z^2\frac{d^2u}{dz^2}=0.$$

7. Show how to change the variables in a double integral.

If $x^2+y^2=r^2$ and $\frac{y}{x}=t$, change the variables to r and t in the expression

$$\int_0^a\int_0^b f(x,y)\,dydx.$$

8. Show how to determine the locus of the feet of perpendiculars from the origin upon the tangent lines to a given curve in space.

The equations to the curve being $x=a\cos\theta$ $y=a\sin\theta$ $z=c\theta$, show that the locus is a curve lying on a hyperboloid of one sheet.

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9. State the conditions of a contact of the second order between two surfaces; and show that a surface of the second degree can generally be found with its axes parallel to the co-ordinate axes, having a contact of the second order with any given surface at a given point.

10. Integrate completely the following equations:

$$\frac{d^2y}{dx^2} \pm 2\tan x\frac{dy}{dx} - y = 0.$$

11. Find the equation to a surface of revolution such that the distance of the $C\,G$ from the vertex for any segment cut off by a plane $\perp^r$ to the axis shall vary as the square of the length of the segment.

In Political Economy.—*Examiner, Professor Leslie.*

1. What are, according to Adam Smith, the causes of the prosperity of new colonies, and why?

2. Why are grants of land unsuitable endowments of a church or public institution in a new colony?

3. In what sense, and with what limitations, is it true that the rate of profit is the same in all trades?

4. According to a Parliamentary Return, the wages of agricultural labourers in 1861 averaged 10*s.* 2*d.* in Roscommon, and only 6*s.* a week in Queen's County. Can you explain this inequality consistently with the economic theory of the equality of wages in the same employment?

5. On what causes will the price of linen for the next two years depend?

6. State briefly the chief advantages and disadvantages of direct taxation.

7. State briefly the chief advantages and disadvantages of indirect taxation.

8. Explain the principle of Mr. Pitt's Sinking Fund, and point out its fallacy.

9. How does an adverse foreign exchange affect exportation and importation respectively, and why?

10. On what causes does the value of gold in a country of gold mines depend?

11. On what causes does the value of gold in a country without gold mines depend?

12. Explain the principles of the Bank Charter Act.

In Anatomy and Physiology.—*Examiner, Dr. Redfern.*

ANATOMY.

1. Describe the tympanic cavity, its shape, walls, openings, and membranes. Enumerate its contents without describing them.

2. Describe the branches of arteries which are distributed upon the alimentary canal, and their anastomoses with each other from the mouth to the anus.

3. State the position, size, relations, and coats of the duodenum, and describe the minute structure of the mucous membrane and its accessory parts.

PHYSIOLOGY.

1. What are the phenomena attendant on the coagulation of the blood? What circumstances hasten, and what retard, coagulation? State what evidence there is that coagulation results from the separation of ammonia

from the fluid blood. State the proofs of a super-alkaline condition of the blood during life and after death, and the circumstances under which super-alkalinity occurs in man's blood, and those which will produce it in that of animals.

2. Describe the reparative process which takes place after the division of a tendon, a nerve, and a muscle respectively; also after a wound of cartilage, the fracture of a bone, and the destruction of a portion of skin.

3. Describe and contrast the structure of the respiratory apparatus of a fish, a reptile, a bird, and a mammal.

SURGICAL ANATOMY.—*Examiner, Dr. Gordon.*

1. Describe the relations of the Anterior Tibial Artery, and the practice that has been pursued in cases of wounds in this vessel in Compound Fractures of the Leg.

2. Describe briefly the relative position of the bones of the tarsus to each other; their articular surfaces, and the guides which assist in determining their precise situation in performing the amputations of this part of the foot, as described in the text-books of Surgery.

3. Describe the course and coverings of the various forms of Inguinal Hernia.

4. What arteries supply the Mammary Gland? and mention the precautions to be taken to avoid loss of blood in its excision.

MEDICAL JURISPRUDENCE.—*Examiner, Dr. Hodges.*

1. Describe the methods required for the detection of alcohol in the contents of the stomach.

2. State the operations employed to detect hydrochloric acid in the presence of organic matters.

3. How is hydrochloric acid quantitatively determined?

4. Describe the methods required for the identification of sulphuric acid, and the determination of the amount of commercial acid which may have been swallowed.

5. How is arsenic quantitatively determined?

6. What are the objections to the evidence afforded by Reinsch's process, when employed for the detection of arsenic?

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